

660
APRIL 1952

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CHEMICAL PROCESSING

The News Magazine of Processing Developments and Control

Highlights

of This Issue

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The Cover Picture

A light "spraying" with freon lets enough into vacuum vessel to set off alarm of leak detector. Former method called for shut-down, pressurizing, painting with soap and water. See story on page 9

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"That's Interesting"

Closets quickly cedarized with brush-on coating

A coating which gives clothes closets and chests protection and aromatic properties associated with cedar is easily brushed or sprayed after being mixed with water to proper consistency. It is also suitable for use on walls, as it may be applied over wall-board, paint, plaster or any smooth surface. It seals cracks and crevices and dries to an extremely hard surface. According to USDA, 1% of the oil of red cedar is necessary to repel moths. Many cedar chests contain around 2% of cedar oil.

This coating is a compound containing pulverized red cedar. Sufficient non-volatile concentrated cedar oil is added to bring percentage up to 8½%. Some chemicals are added to impart ability to adhere to many types of surfaces. (Cedar-Lux is made by Cedar-Lux Products Co., Inc., 703 Main St., Kansas City 6, Missouri.)

50 cities adopt fluoridation

Over fifty American cities have adopted fluoridation programs in accord with recommendations of the American Dental Society. Dubuque, Iowa, is a recent addition to the list. Its water supply is treated by means of an Omega gravimetric feeder, incorporating a Rotolock feeding mechanism which guards against the possibility of overfeeding.

Concentration of 1.2 ppm of fluoride is maintained. Capacity of unit is 10 lb per hour for either sodium fluoride or sodium silico-fluoride, with hopper capacity totaling 500 lb. (Omega Machine Co., Div. of Builder's Iron Foundry, Providence, R. I.)

Mechanical toothbrushes can test 12 dentifrices at once

A mechanical, multiple toothbrush reduces testing time from 100 days of twice-a-day brushing (in normal use) to 90 minutes. Machine is being used by the Research Department of Victor Chemical Works, Chicago, a major producer of phosphate chemicals. Some of the phosphates are important components of tooth powders and pastes.

This mechanical toothbrush is an assemblage of 6 reciprocating arms connected on both sides to a revolving shaft which extends from both sides of a small electric motor. Arms move over metal cups in which antimony strips of micro-brinell hardness are brushed for 10,000 double strokes under a standard pressure on a slurry made of the dentifrice under test. Ends of each reciprocating arm have brush holders which are weighted to hold the brush to surface of the test specimen under constant pressure. An automatic counter records 10,000 double strokes in approximately 90 minutes. Twelve tests are conducted simultaneously.

Sperm whaling industry reviving

Oil from 3066 sperm whales has been purchased by Archer-Daniels-Midland Company of Minneapolis. This order of sperm oil represents over half of this year's catch. ADM's oil was delivered by Spermacet Whaling Co., operating the whaler, Anglo Norse, out of Tonsberg, Norway. The only other whaler specializing in sperm whales is a smaller ship operated by the Japanese. Sperm whaling is an industry that had nearly died out. Sperm oil, however, meets the special needs of automatic shifts on automobiles and is effectively used as mixtures for cutting oils and high-pressure lubrication, tanning leather and textile processing.

"More lies than cross ties on a rr track —?"

In the popular folk song, "On Top of Old Smokey," Burl Ives laments that lovers tell more lies than there are cross ties on a railroad track. No doubt he'd appreciate our calling attention to the fact that wood preserving plants annually treat nearly 40,000,000 cross ties. Tie-preservation each year consumes nearly 90,000,000 gal of liquid preservatives. Most of these are creosote-coaltar or creosote-petroleum solutions.

Eastern Railroads Presidents Conference cites these operations as typical of the goods and services which the lines must maintain at costs which have risen 130% since 1939 while their ton-mile revenue has increased less than 45%.

"That's Interesting"

Instrumentation course

An instrumentation course will be held at the Hatboro, Pa., plant of Fischer & Porter Co., May 12 through 16. This course will cover manufacture, calibration, installation, operation and maintenance of primary and secondary control instruments. (Fischer & Porter Co., East County Line Road, Hatboro, Pa.)

Plastic lined sewer pipe

A vinyl plastic lined sewer pipe nearly 7 miles long and over 2 yards in diameter has been installed in Orange County, California. Re-inforced concrete pipe is lined with "T-Lock Amer-Plate," a plastic sheeting developed and manufactured by Amercoat Corp., South Gate, California. Plastic sheets, not less than .060 inch thick, are softened and welded into one continuous lining by a hot air torch. Pipe is lined only three-quarters of the way around inasmuch as the gas area above the water line is the only part of the pipe requiring protection.

Ingredients of the sheets include Geon polyvinyl chloride resin, inert pigments and plasticizers. After these are milled, the final shape of the T-Lock Amer-Plate is formed by molding. (B. F. Goodrich Chemical Co., Rose Bldg., Cleveland, Ohio.)

Solvent prolongs shelf life of soap

Recent scarcity of such solvents as diethyl phthalate, benzyl benzoate and benzyl alcohol has led to development of "Solvaron." This is a high boiling, almost colorless polyoxy aromatic ether. It has a pleasant scent and no residual odor and is chemically inert. Thus, it is especially suitable for use in soap formulations. (Dodge & Olcott, Inc., 180 Varick St., New York 14, N. Y.)

Not enough aluminum

It takes 20,000 kilowatt hours to make a ton of aluminum, enough to supply all the electrical requirements of an average American home for 10 years. In spite of the phenomenal growth of the aluminum industry since discovery of the electrolytic process, projected production of 2,700,000 tons by 1960 will be 600,000 tons short of foreseen demand.

Synthetic latex flows faster when pipe's porcelain enameled

Piping, valves, tubing, extruders and other equipment in the synthetic rubber industry through which the synthetic latex must be moved are now being porcelain enameled to speed the flow. Gummy latex will not cling to the smooth porcelain enamel. (Porcelain Enamel Institute, Washington 5, D. C.)

(Continued on third cover)

The CORROSION RESISTANCE of glass *plus* the working STRENGTH OF STEEL

In specially designed furnaces, at temperatures as high as 2100°F., the almost universal corrosion resistance of Pfaudler glass is combined with the working strength of steel. During this high heat period, *an interlocking chemical action takes place between glass and steel*. As the temperature is lowered, forces are set up within the glass itself which make it tough and durable. It has now become glass completely reinforced by steel with a service life almost always determined by hazards other than the glass itself.

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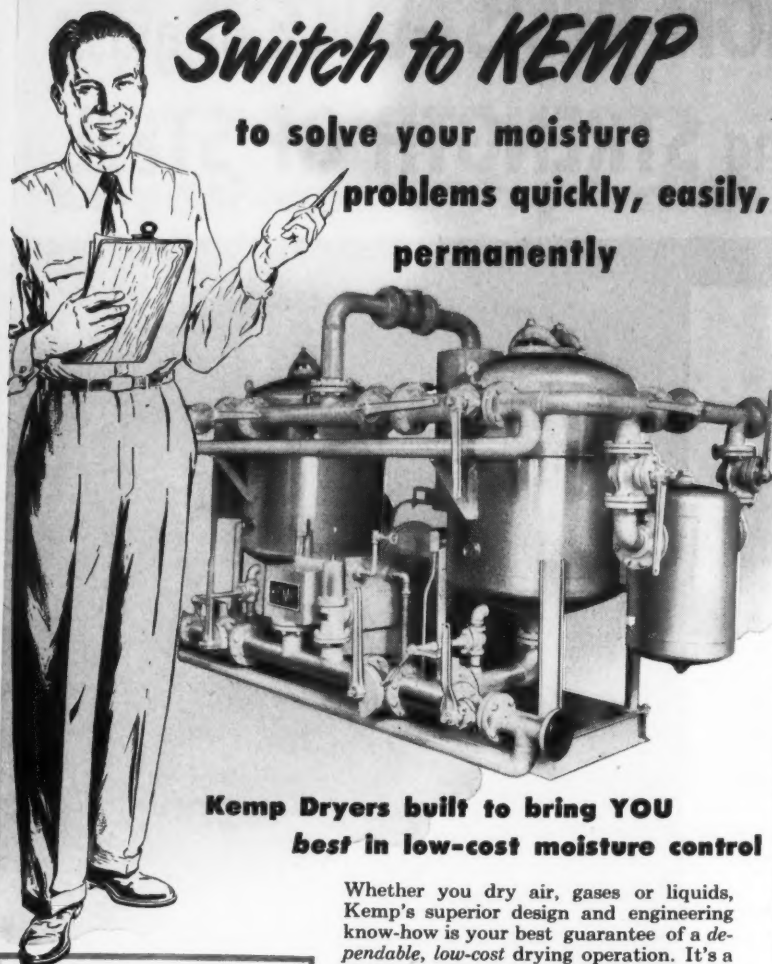
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... see information request
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When inquiring check CP 1574 on handy form, pgs. 2-3

A Place for Everything

AS A regular reader of CHEMICAL PROCESSING, you know that it is designed for rapid comprehension of useful ideas. Probably you've noticed that our January issue started a series of new sections. There's a reason.

Editorial content of CP has grown. . . we've found that the scope of our sections had become too wide. Since it is our policy to make the news easy-to-find and easy-to-read we've divided some sections.

New Sections Speed Reading

Compare the sections Process Instrumentation and For the Laboratory today with the instrument section of the earlier issues. There may be no argument as to whether an automatic titration set-up is a process instrument — there are too many processes where the chief method of control is the control lab's findings with just such equipment. But, if you're looking for a temperature recorder, automatic titration equipment won't be much help to you. For this reason the purely lab equipment has been given a section of its own. You'll find your temperature recorder or flow rate controller faster than you did before.

In the March issue's lab section you found a polyethylene bottle used to make a buret easily operable with one hand. There was also an assortment of new designs for everyday lab equipment. Ovens, a pressure bomb, electronic lab instruments . . . but every article was selected to be of interest to the chemist, the research man, the testing department.

The Process Instrumentation section will continue to deal with recording and controlling devices, process flow meters, and other interesting methods or equipment which will do it faster, or better.

Safety, Packaging and Construction and Maintenance are three more sections which are more specific, more specialized in order to save your time. Ideas, schemes, equipment and techniques pertaining to these more specialized topics are now collected in one place. Our editorial material can't be completely classified, though, because so many of our stories show promise in several connections. And we'll continue to feature these general interest stories of "how it was done better" in the New Solutions section.

How to Use CP

The best way to use CP is to take time to see what is on every page. But CP is designed so that if you don't have enough time to study it, you can still find most of the material that interests you. These features help you:

—a list of "Highlight" stories which starts on the front cover and is continued on page 6. These articles are selected on the basis of their value to the majority of our readers. Look through this list, see which apply to your problems.

—Uses, Features, Description article format will tell you at a glance whether the article applies to your case. If it does, you can find out about special features — is it better? — at a second glance.

Let's Hear From You

How can we make CHEMICAL PROCESSING more convenient and more valuable to you? That is our biggest job. We're constantly trying to arrive at new answers to that question. Perhaps you have some ideas about what you would like to see us do — by all means, let us know about them. Your letters and suggestions can have a real effect. They called our new sections into being. So be sure to let us know what you want.

THE EDITORS

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on handy form, pgs. 2-3

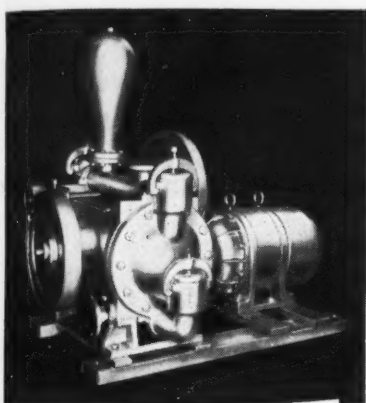
CHEMICAL PROCESSING

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are mighty rough on working parts of pumps

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CHEMICAL PROCESSING

(CHEMICAL PROCESSING PREVIEW)

The News Magazine of
Processing Developments and Control

Vol. 15

APRIL, 1952

No. 4

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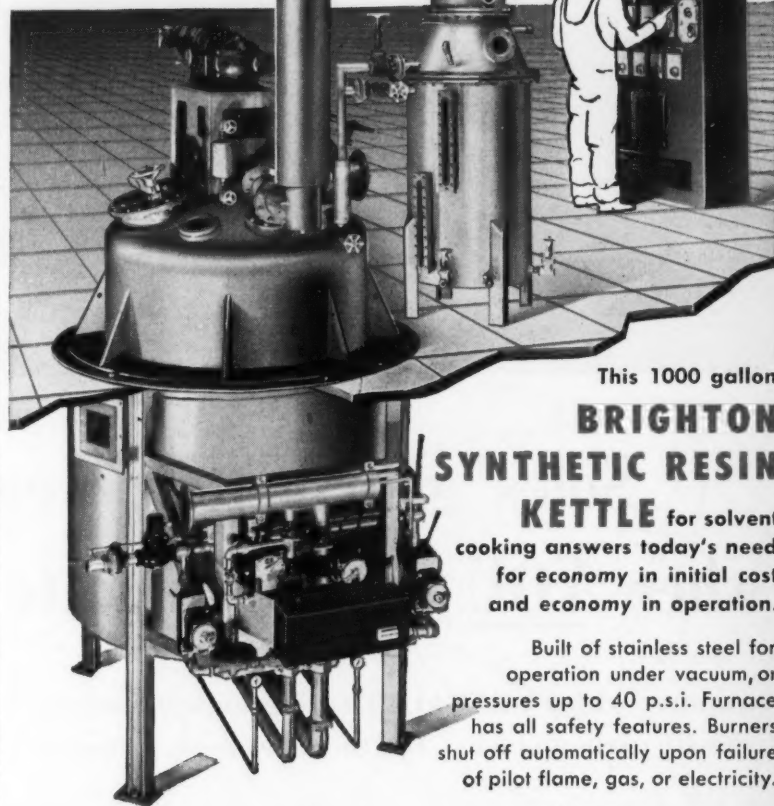
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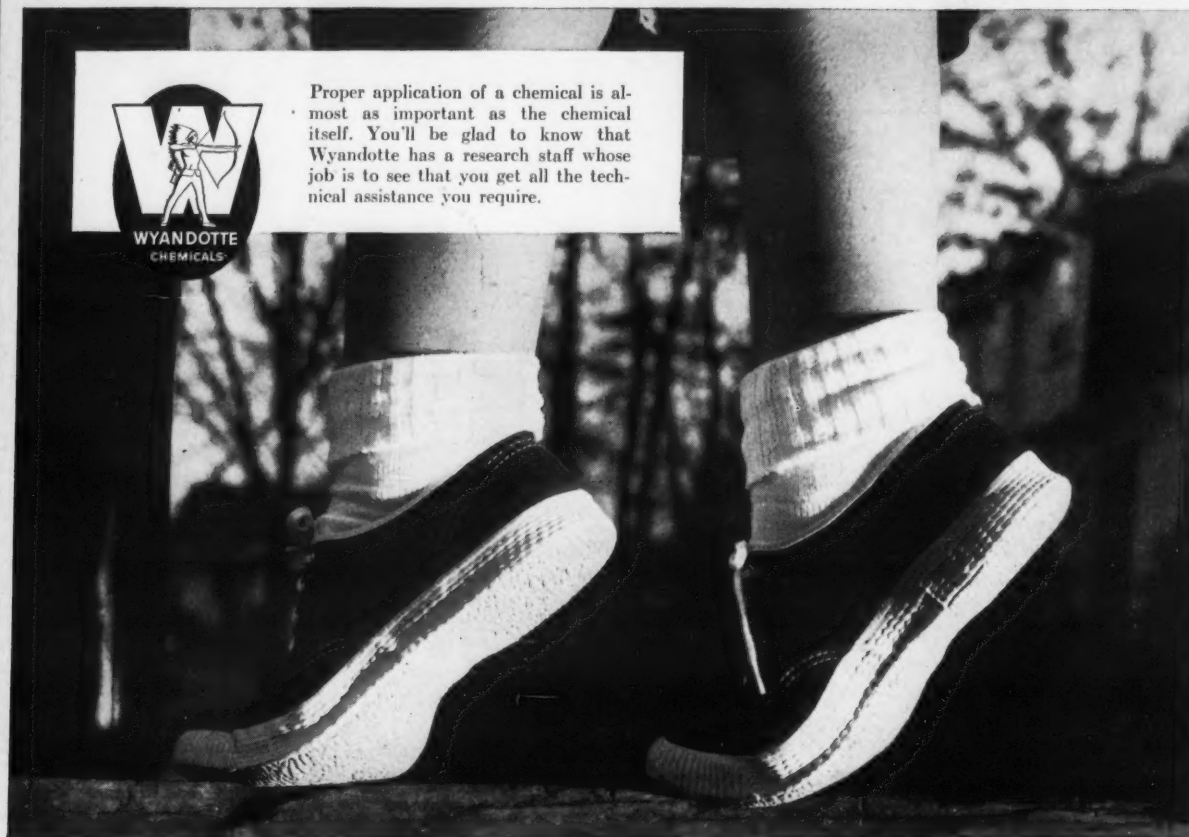
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HIGHLIGHTS

(Continued from front cover)

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CHEMICAL PROCESSING

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APRIL, 1952

Fast cleaning is no trouble at all when you use

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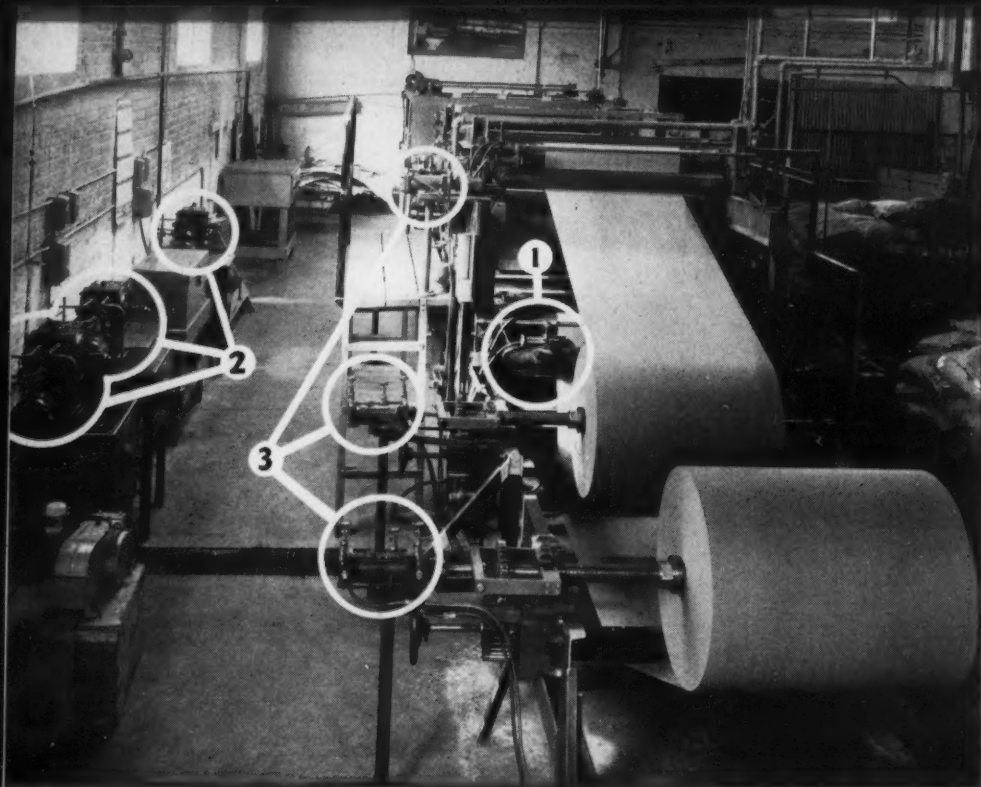


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In Canada: North American Cyanamid Limited, Toronto and Montreal

When inquiring check CP 1579 on handy form, pgs. 2-3



View of laminating machine shows nozzles (1), controllers (2), and cylinders (3)

New Solutions
OF PROCESSING PROBLEMS

Eliminates Wasted Chipboard While Cutting Labor in Lamination

Used to trim $\frac{1}{2}$ " from each edge, but now
that layers match to within $\frac{1}{32}$ ", manu-
facturer does not trim

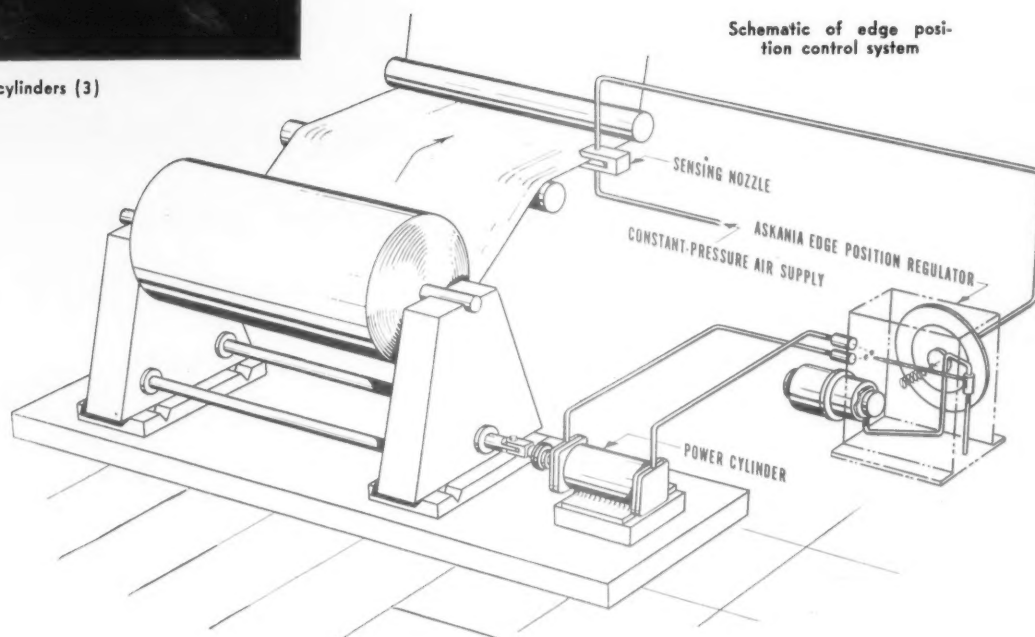
PROBLEM: Folding cartons — for everything from a new suit to a pound of oleo — are made of laminated paper. Applying the glassine, bond, kraft, or other surfacing to one or both sides of the chipboard base is one of the essential operations of laminate-makers such as Morris Paper Mills, Morris, Ill.

Until last year, operation of their 52-inch-wide Andre-matic laminating machine was handled by two men. One of them spent about 90% of his time cranking the merging paper webs into a matching position. At that, the best consistent operation that could be expected was to make the paper layers meet within $\frac{1}{2}$ inch at the edges. Trimmings from the mismatched edges could not be returned to the beaters for reprocessing into chipboard, either, since the adhesive and surfacing papers altered its properties. So trimmings of $\frac{1}{2}$ inch at both edges were scrapped.

Solution: In order to control position of the merging paper webs, the Morris mill installed Askania Edge Position Control equipment. In this controller, a rectangular orifice above the edge of the moving paper web receives air pressure (at four to five inches of water) from a second similar orifice below the web. As the edge of the paper moves over to reduce the effective opening, transmitted pressure drops off.

This recovered pressure is carried to the diaphragm of the regulator. Regulator amplifies the pressure, changes it to hydraulic force by means of a jet pipe relay — a pivoted nozzle through which oil is pumped at 100 psig. Jet pipe directs this oil stream at two closely adjacent orifices that are connected to opposite ends of cylinder.

When web is in the correct position, jet pipe is centered on the two orifices, there are equal pressures at both



ends of the cylinder, and the piston is stationary. But if the controlled edge moves away from the desired position, air pressure is changed at the diaphragm, jet pipe moves toward one orifice and away from the other unbalancing oil pressures at opposite ends of the cylinder and moving the piston to correct edge position.

In the Morris installation four nozzles (orifice sensing elements), four cylinders, and three controllers are used. Hydraulic switches allow the controllers to operate a selected cylinder. Since paper is fed at from 200 to 400 feet per minute, a slow and therefore difficult speed for control, individual papers are controlled to meet at the same position.

Results: In six months of trouble-free operation at

the Morris plant, this equipment has kept laminate layers within $\frac{1}{32}$ of an inch of matching perfectly. Plant no longer has to rely on trimming to produce full usable widths and they have no laminate scrap to dispose of from this operation. One laminating operator is still required to watch glue feed and so forth, but the other man only needs to spend about ten minutes per shift. His job? — cleaning up.

(Askania Regulator Company, Dept. CP, 240 E. Ontario St., Chicago 11, Ill., manufacturers this equipment for winding or unwinding metal sheet and foil, paper, textiles, plastic films, and pliable packaging materials. For more information check CP 1580 on handy form, pages 2 and 3.)

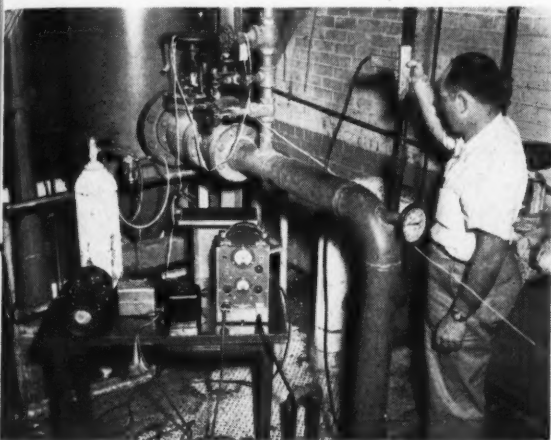
Simple Procedure Spots Leaks Without Shutting Down Vacuum Equipment

Freon detector find leaks that used to mean shutting down and painting with soap and water

PROBLEM: Deodorizing cottonseed and soybean oils — for use in cooking and salad oils, or margarine — depends on holding the crude oil at three-tenths of an inch of mercury while scrubbing it with superheated steam. In one southwestern plant handling 10,000 pounds of vegetable oil an hour, this process was found to be so pressure-sensitive that even a rise to four-tenths inches of mercury produced an inferior product. Plant resorted to shutting down when instruments showed loss of vacuum. Leak check which followed involved stopping and emptying the equipment, pressurizing it with air, and painting outside surfaces with soap and water.

Solution: They then installed a Type H leak detector. "H" stands for Halogen — to which the detector responds. However, it is sensitive enough so that even small amounts of halogen compounds register, too. Probe of the detector was inserted in the vacuum system's exhaust pipe. Output of the control unit was connected to an automobile-horn alarm.

To make a check for leaks operator uses a portable cylinder of freon, goes over the outer surfaces "spraying" them with gas. Enough freon is drawn in through



Detector is installed in exhaust pipe. It sounds alarm when freon leaks into system

even the smallest leak to register in the detection system. Horn summons a foreman and the instruments show him how serious the leak is. Position of the freon source gives the locality of the leak.

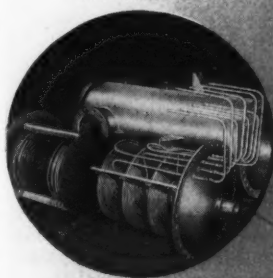
Big advantage of this method is that vacuum operation continues operating while the leak check is made. Freon does not mix with oil; it is carried out by vacuum pumps.

Results: Standard practice at the plant now is to check equipment for leaks monthly as well as when pressure readings indicate the possibility of leaks. Check is faster, surer, and production is not interrupted.

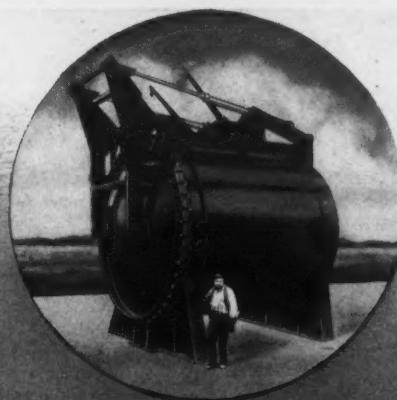
(Product of General Electric Co., Dept. CP, Schenectady 5, N. Y. . . . or for more information check CP 1581 on handy form, pages 2 and 3.)

APRIL, 1952

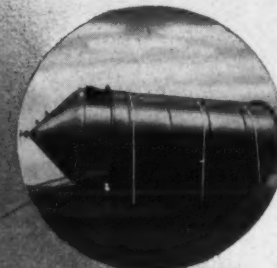
Aluminum Reaction Vessel with Aluminum Coils



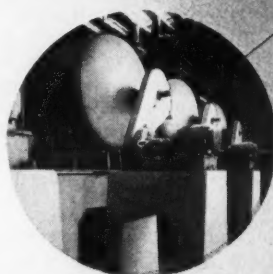
Horizontal Jacketed Impregator
1 1/4" Thick Steel, 11'-4"
Diam., 17'-8" Long, 5 Ton Door



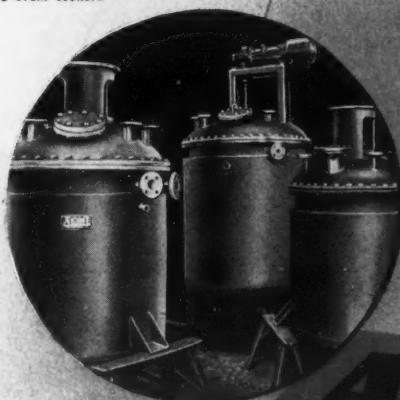
Tor Base Extraction Tank
Fabricated of Monel Metal;
16'-0" Diameter, 25'-7" High



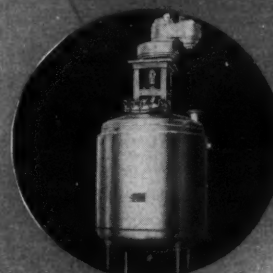
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Lead-Sheathed Agitators



Stainless Steel Jacketed
Vessel with Agitator

For the construction of pressure or vacuum equipment subject to ASME or API-ASME specifications, fully qualified Acme engineers and craftsmen provide a wealth of experience. Acme equipment more than meets code requirements. In actual operation, as exemplified by many installations throughout the world, Acme equipment has proven more economical, while producing products of exceptionally high quality. Through creative engineering and modern facilities, Acme is able to hold construction costs to a minimum, consistent with good performance. For help in planning your new plant or the expansion of your present one, our facilities are at your disposal. Write for the information you require, without obligation.



When inquiring check CP 1582 on handy form, pgs. 2-3



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One part per million of Dow Corning Antifoam A kills foam during caustic soda concentration...

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When inquiring check CP 1583 on handy form, pgs. 2-3

Page 10

Lubricated Packings Reduce Leakage in Refinery's Centrifugal Pumps

A CHANGE from 50 to 60 cycle electric power, with its corresponding increase in rotational speeds, precipitated difficulty with conventional packings, particularly in liquid petroleum gas pumps at the Shell Oil Co., Wilmington Refinery, Calif. In an attempt to find a quick solution for the most serious problems, a number of pumps were equipped with lubricated packings. Results obtained were gratifying in that not only were packing failures eliminated, but gland leakage was found to be greatly reduced.

In order to evaluate the savings from gland leakage, a simple vapor recovery device was developed to measure losses from the pumps. As shown in picture A, device consisted of a canvas cover fitted over the pump gland. This cover was sealed in place with tape and connected, through a vacuum pump, to a wet test meter.

During the test, vapors from the pump gland together with air leakage through the canvas were suctioned into the meter, while coincidentally a representative sample was withdrawn. By taking test duration into account, it was possible to determine from meter reading and sample analyses the amount of gland leakage actually occurring. Presence of air in sample indicated that all vapor leakage had been collected; whereas a sample consisting entirely of hydrocarbons denoted that some vapors had escaped — necessitating a retest at a higher vacuum.

An interesting rule-of-thumb criterion for leakage rate was found. If vapor leakage from an LPG pump is barely visible, the blow-by is about 30 gal/day. Leakage at a rate of 20 gal/day is not visible. With respect to actual leakage values obtained, most LPG pumps equipped with conventional packing lost in excess of 30 gal/day/gland. Test results on lubricated packings and mechanical seals

Cooling water usage by pumps was cut approximately 75% to give secondary savings . . . reports H. L. Isham of Shell Oil Company

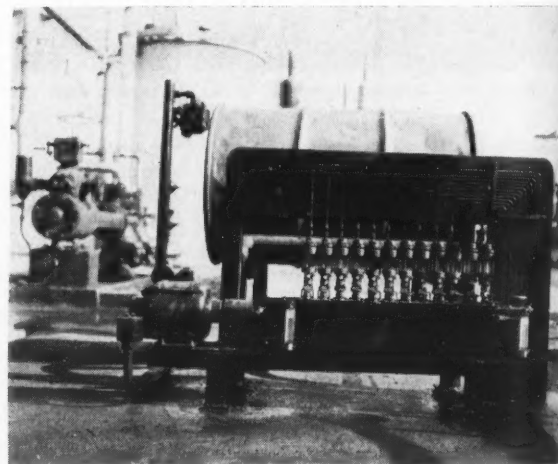
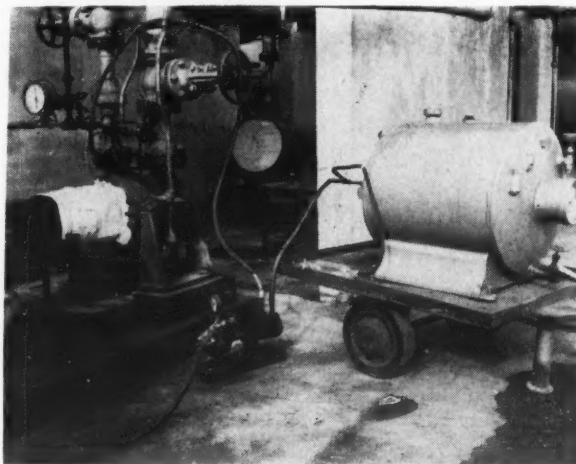
were consistently lower — falling with few exceptions in the range of 2 to 10 gal/day/gland.

Another study of lubricated packings took place at the above refinery on a set of 31 LPG pumps. These were divided in five groups according to location, with a separate lubricator for each group. Each of these stations, as illustrated in picture B, consists of a drum mounted on a permanent rack and connected with flexible tubing to a lubricator. From this station, 1/4" copper tubing leads to the various pumps.

As regards pumps themselves, no changes were required except for the installation of a lantern ring in stuffing boxes to receive and distribute the lubricating oil. As an example of oil consumption, one lubricator serving seven double-ended pumps consumes a drum of oil, on the average, every 25 days.

To maintain operating efficiency, the pump glands are inspected daily, with periodic adjustments being made as required. In general, there has been no visible leakage occurring.

A secondary saving resulting from this installation is in



CHEMICAL PROCESSING

cooling water usage. Since stuffing-box temperatures with lubrication are lower than those with conventional packing, it has been possible to reduce water flow to the pumps by approximately 75%.

(Information courtesy of Durametallic Corp., Dept. CP, 2104 Factory St., Kalamazoo 24F, Mich. . . . or for more information check CP 1584 on handy form, pgs. 2 & 3.)

Hot brine lines of Buna N still satisfactory after two years . . .

funnels of same material handle hot cell effluent that analyzes 11% NaOH and 15% NaCl

Hooker Electrochemical Company, Niagara Falls, N. Y., has been testing Buna N hard rubber pipe as a brine feed line to electrolytic caustic-chlorine cells for more than two years. Reports up to date are quite satisfactory, and this type of pipe will probably be used in the cell-expansion program at Hooker's Tacoma, Wash., plant.

At Niagara Falls, four-inch Buna N header lines carry 75°C brine to Hooker Type S and S-3 cells. The pipe is drilled and tapped to take threaded Buna N nipples. Gum rubber tubing is attached to the nipples, and the brine enters the individual cells through these tubing lengths.

Steel pipe previously employed in this service had a service life of only 1½ to 2 years. Other types of rubber and plastic materials have been tried, but main drawback with those was sagging and warping under the heat and weight of the brine being carried. In contrast, Buna N pipe has remained straight even though workmen have occasionally stood on it.

Buna N hard rubber is also being used by Hooker for funnels that collect hot caustic soda-brine mixture from the cells. Here, they have replaced steel funnels and should exhibit longer service life. Temperature of mixture is 95-96°C. It analyzes 11% NaOH and 15% NaCl.

(Pipe and funnels were supplied by American Hard Rubber Co. — who identify this product under the name "Tempron" —, Dept. CP, 93 Worth St., New York 13, N. Y. . . . or for more information check CP 1585 on handy form, pages 2 and 3.)

Gives potential users properties and prices of zirconium

Primary purpose of 26-page bulletin is to familiarize potential users with the properties of zirconium metal. In addition, an eight-page insert gives the prices of hot rolled sheared plate, hot and cold rolled strip, forged or hot rolled bars, cold rolled wire, zirconium metal sponge and briquettes.

As an introduction to subject of properties, brief expositions are given on historical background, ore supply, methods of manufacture, and uses so far developed. The discussion of physical, chemical and mechanical properties is accompanied by five tables. One of these compares the corrosion resistance to 33 agents of zirconium, titanium, tantalum, stellite no. 6 and type 316 stainless steel.

Among information presented in five graphs is tensile strength, Rockwell hardness, annealing temperature, and gain in weight of zirconium by oxidation in air for 1 hour. "Properties and Prices of TAM Zirconium Metal" is issued by The Titanium Alloy Manufacturing Division, National Lead Co., Dept. CP, 111 Broadway, New York 6, New York. When inquiring specify CP 1586 on handy form, pages 2 and 3.

TYGON

Versus

H₃PO₄

PHOSPHORIC ACID is another way of spelling "trouble" for the man concerned with corrosion and its control. Much phosphoric acid is used — much corrosion results. One of the best methods of stopping this corrosion is with the versatile TYGON family of plastic compounds.

Basically, the TYGON family consists of a series of selected polyvinyl resins skillfully modified with other materials to give the best possible balance of chemical resistance and general physical properties. The resultant compounds take the form of calendered or press-polished sheets, molded goods, extrusions, or protective coatings. Each compound — each form of TYGON has certain characteristics which recommend its use for certain applications.

As sheeting, TYGON is generally used as linings and coverings for tanks, tank covers, absorption towers, vats, bins, hoppers, troughs, blowers, impellers, fume hoods and fume ducts. In this form, TYGON is resistant to phosphoric acid in any concentration and at temperatures as high as 165-170°F. Where only fumes of the acid are encountered, the temperature limit can be raised to 200°F. Prolonged contact with mixtures of phosphoric and other acids, or organic compounds, is not advised without the previous counsel of U. S. Stoneware engineers.

TYGON sheets are also die-cut into gaskets, washers and diaphragms for use in pumps, valves, filters, reactors, piping and all types of process equipment. In such uses, chemical resistance is the same as with the linings. Temperature limits, however, may be somewhat higher, depending upon the size, design and specific use of the die-cut piece.

As molded goods, TYGON also finds use as gaskets and as grommets, washers, bumpers, handles, stoppers, closures, and miscellaneous parts and fittings. Here again, resistance to all concentrations of phosphoric acid is excellent and temperature limits may range up to 200°F or higher depending on the size, shape and use of the molded item. Combinations of phosphoric acid and other chemicals are best handled only after qualified advice.

In extruded form, TYGON is used primarily as tubing and piping with sizable quantities of solid cord and channel going into gasketing applications. Extruded TYGON also resists phosphoric acid in any concentration and at temperatures as high as 200°F. Mixtures of phosphoric and other acids, or organic compounds, is not recommended without engineering counsel. Where constant pressures of more than 40 psi are involved, particularly at elevated temperatures, braided jacket reinforcement is available and advised.

Typical uses of TYGON Tubing include all laboratory applications and many plant piping jobs. The clarity, flexibility, abrasion-resistance, smooth surface, and lightweight of the larger sizes (up to 2" ID) prove advantageous in such uses as transfer lines; as ports on pumps, filters and compressors; as syphon hoses; as line desurgers, and, as flexible connections.

For protective coating work, TYGON is available as a solvent type paint and as a plastisol (TYGOFLEX). Both forms are resistant to the fumes and spillage of phosphoric acid in any concentration and at temperatures up to 200°F for the paint and 250°F for the plastisol. Neither form should be exposed to mixtures of phosphoric acid and other chemicals without previous advice.

As a paint, TYGON is used to protect all types of equipment, structural steel, walls, and ceilings. Special consideration should be given to the limits of a thin film; but, in general, excellent service can be obtained by using a primer plus two top coats for mild environments and a primer with no less than five top coats for severe exposures.

As a plastisol, TYGON finds use as a heavy duty coating and in the casting or "slush" molding of flexible parts and fittings.

Properly applied, TYGON is inexpensive insurance against the corrosive attack of phosphoric acid and many other acids, alkalis, oils, greases, and waters. For maximum results with TYGON the counsel of the corrosion experts of U. S. Stoneware is strongly advised.



In addition to TYGON in its various forms, we also manufacture a number of other materials capable of handling phosphoric acid in any concentration and under all types of operating conditions. These products include chemical stoneware and porcelain, acid proof brick and cements, homogenous lead linings, and other organic linings and coatings.

Why don't you submit your corrosion problem today? There's no obligation and we'll be pleased to be of assistance. So write, now!

THE UNITED STATES STONWARE CO., Akron 9, Ohio

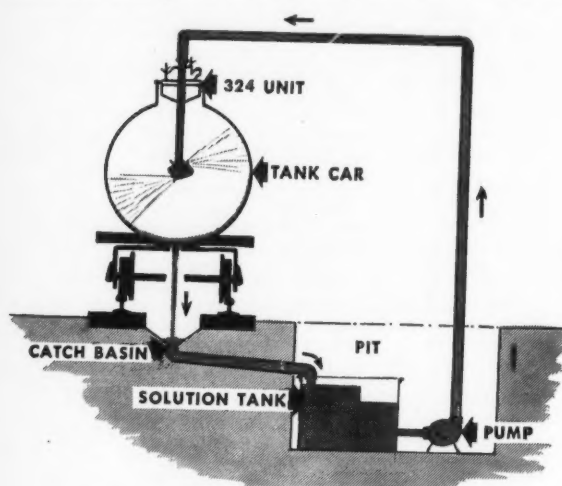
ENGINEERS, MANUFACTURERS, ERECTORS OF CORROSION-RESISTANT EQUIPMENT SINCE 1865

When inquiring check CP 1587 on handy form, pgs. 2-3

Knife-like Action of Liquid Spray Cleans Inside of Tank Car In About 1½ Hours

Two opposing nozzles operated by air-driven motor are lowered into car through dome

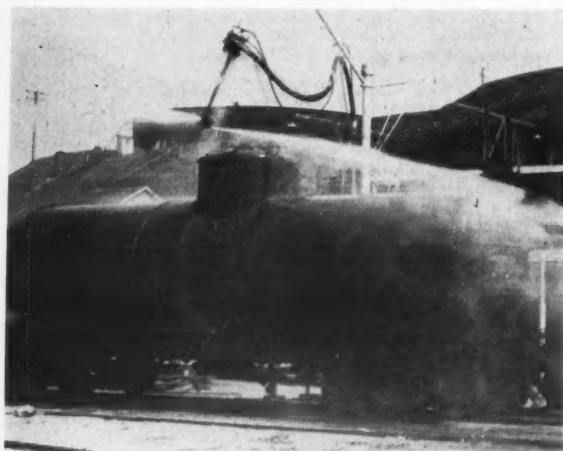
RAILROAD tank cars need cleaning regularly to prevent contamination of subsequent cargo and to prepare for change-over from one cargo to another. Problem involved in the operation is one of economy — from the standpoint of both time and labor. The in-



Showing diagrammatically the flow of solution in the tank car cleaning installation

terior of a tank car can be cleaned by using scrapers, brushes and a great deal of manual effort. However, the costs in time and manpower make this procedure an expensive one.

A recent, successful development is a basically simple approach and one that effects cleaning action rapidly. It, the Oakite Interior Tank Cleaning Unit, consists



Demonstrating force of cleaning spray to show what happens inside of car

ANNOUNCING Lapp TUFCLAD SOLID CHEMICAL PORCELAIN ARMORED WITH FIBERGLASS-REINFORCED PLASTIC

Since its introduction 14 years ago, Lapp solid porcelain process equipment has found its way into hundreds of chemical applications where it proved the "first satisfactory answer to the problem" of corrosion or purity. Now, equipment of this same porcelain is available with Lapp TUFCLAD armoring, which adds greatly to its operating security.

THE BODY: Solid Lapp Porcelain, thoroughly vitrified, of zero porosity, acid proof through and through. Widely used for severe corrosion service and where metallic contamination cannot be tolerated.

THE ARMOR: Multiple layers of heavy fiberglass woven cloth, impregnated with a special modified phenolic resin of high adhesive strength for bonding to porcelain and between layers of cloth. Fiberglass cloth patterns are heavily coated and fitted around the porcelain, seams overlapped, and oven-cured to full strength and permanently knit to porcelain. Armor shell fully covers porcelain, running end-to-end and under flanges.

PERFORMANCE: Armor shell acts as a cushion to protect against impact damage in handling or operation. Insulates porcelain against sudden thermal shock. *Most important*, shell in its own right is homogeneous and tough—will hold line pressures even though porcelain is cracked or broken. Safety to personnel and prevention of loss of product are assured by at least temporary control of lines in case of accident.

EQUIPMENT: TUFCLAD armoring regularly available on all Lapp standard Y and angle valves ½" to 6", plug cocks, safety valves, flush valves, pipe and fittings ½" to 8". Armoring readily adaptable to special shapes—tower sections, nozzles, covers, etc.

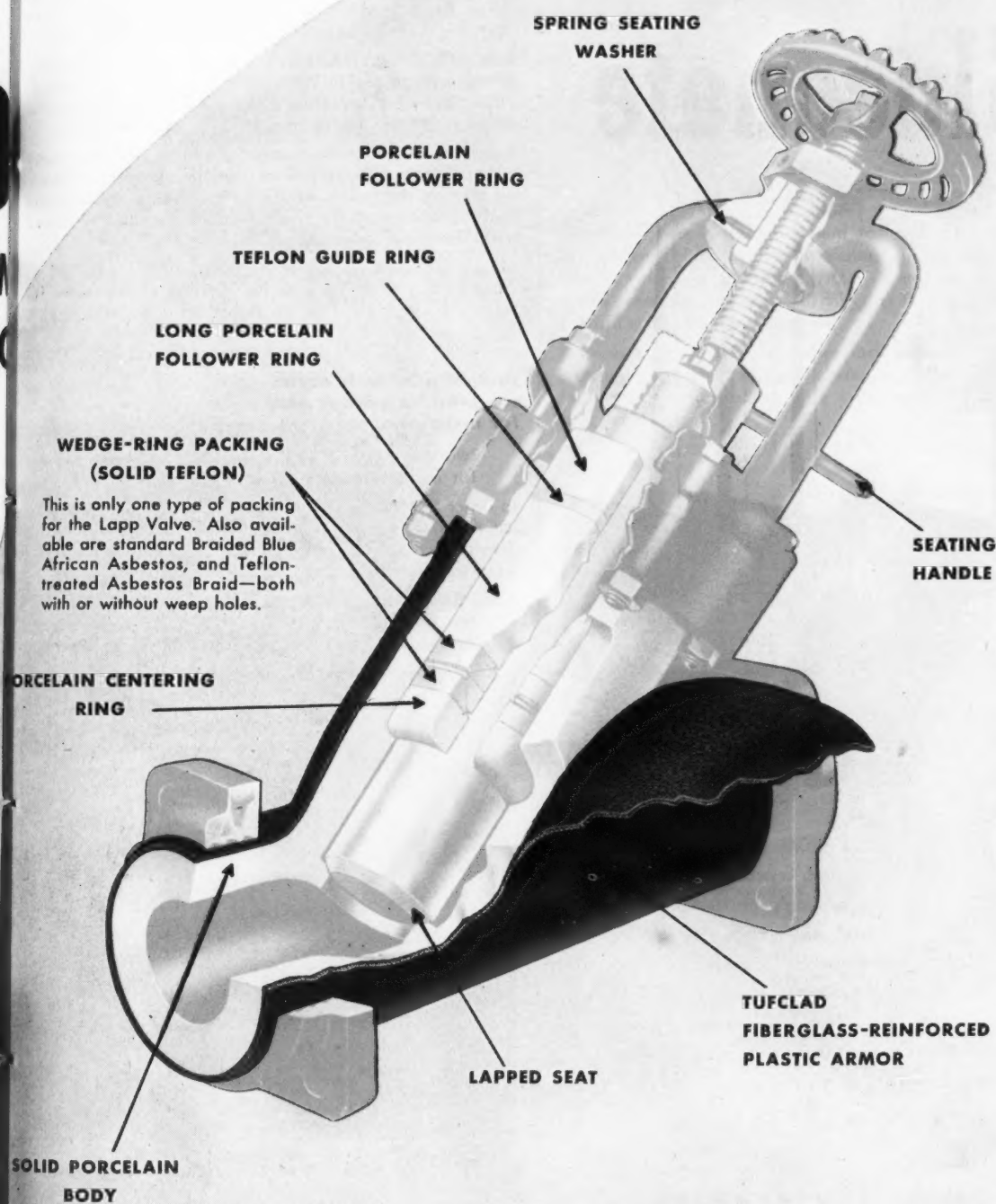
THE COST: Premium of about ⅓ over standard unarmored porcelain—still much lower than the cost of alloy or lined equipment.

WRITE for Bulletin 315, which covers description and specifications. Lapp Insulator Co., Inc., Process Equipment Division, 522 Maple Street, Le Roy, N. Y.

Lapp

PROCESS EQUIPMENT

CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS
PULSAFEEDER CHEMICAL PROPORTIONING PUMPS

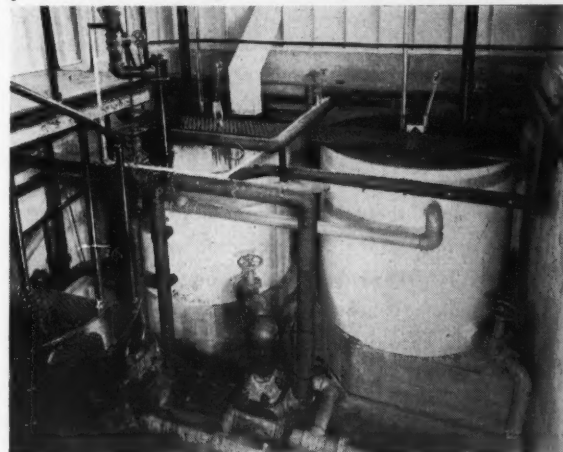


When inquiring check CP 1588 on handy form, pgs. 2-3



Checking unit before it is lowered and clamped in place. Note solution and air pressure hoses at top of unit

essentially of two opposing nozzles mounted on the end of a long, tubular frame and operated by means of an air-driven motor installed at the top of the frame. In position for cleaning, it is clamped in the dome of a



Showing drain line into tank at left. Solution then goes to tank on right for recirculation by tank cleaning unit. Note pumping and heating facilities

tank car so that the nozzles and tubular frame extend into the interior.

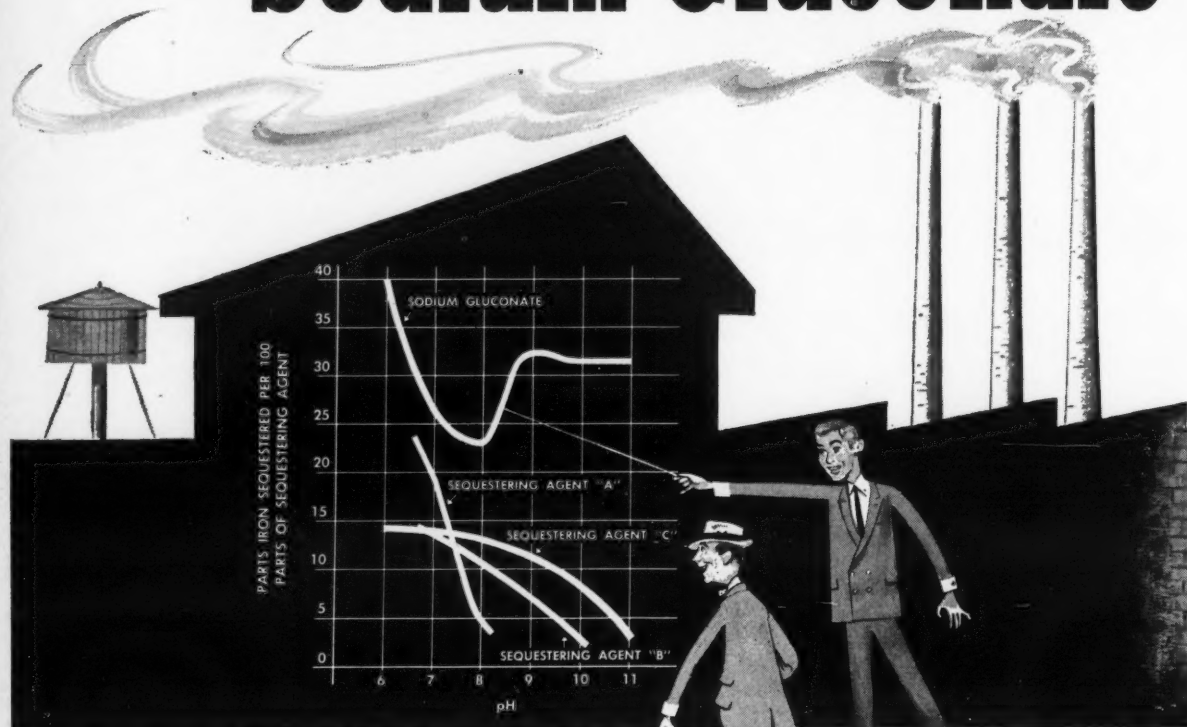
A specialized cleaning solution is delivered through the tube to the nozzles under high pressure. The nozzles move together, rotating about both horizontal and verti-

(Continued on next page)

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SEQUESTER IRON with

Pfizer Sodium Gluconate



● Here's the proof that you put in less...take out more when you sequester iron with Pfizer Sodium Gluconate, Technical. On this chart are the results of a recent study in our laboratories on the iron sequestering power of various sequestering agents. Of the four chemicals on the chart, you will note that Sodium Gluconate exhibited by far the best results in sequestering the ferric ion over a wide range of pH. Pfizer Sodium Gluconate, Technical,

is a stable, free-flowing, tan-colored, crystalline powder. It is available in 100-lb. multi-wall paper bags. Try the sequestering agent with proved results. "Put in less sequestering agent...take out more iron"...with Pfizer Sodium Gluconate, Technical. Contact Pfizer today for more detailed information about this study. Call or write:

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PFIZER

When inquiring check CP 1589 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

(Continued from preceding page)

cal axes. These opposing nozzles describe very close spirals of spray so that every surface inch receives the impact of the cleaning solution at 15-minute intervals. Knife-like action of the spray coupled with the specialized detergent solution used is stated to remove all soils. Records show that it takes about 1½ hours to clean the average soiled car.

Rinsing is accomplished with the same unit by switching off the cleaning solution and substituting rinse water. Thus, the entire operation takes place while men usually assigned to manual cleaning perform other tasks.

A feature that incurs a further economy is the recovery system which collects and re-uses the cleaning solution. By making the necessary additions to keep the solution at the proper strength, a number of cars can be cleaned with the same solution.

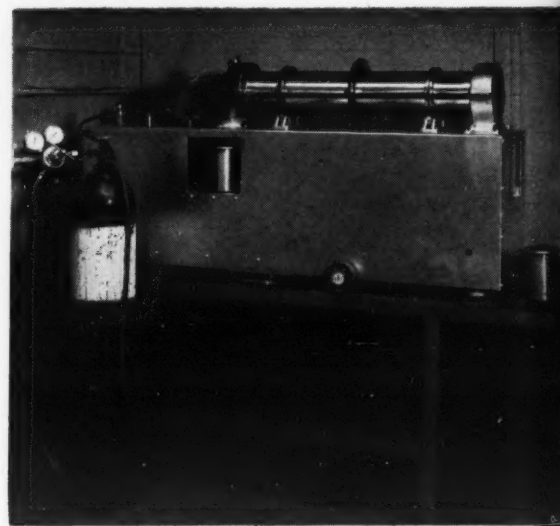
(Make inquiries to Oakite Products, Inc., Dept. CP, 22 Thames St., New York 6, N. Y. . . . or for more information check CP 1590 on handy form, pages 2 and 3.)

Loan of pilot scale dryer can produce enough data for installation . . .

two units offered — one for ordinary work and one for high temperature or inert atmosphere

In order to arrive at design figures and specifications, Bartlett & Snow Company have available facilities of pilot scale drying operations. Two units, in particular, have found wide use for this purpose.

Their Rotary Dryer is 6 inches in diameter and 3 feet long. Propane fired burner serves as the heat source for the stainless (316) tube. At the feed end there are spiral



Direct heat dryer has variable speed and rate; operates parallel and counterflow

flights designed to advance the material into the active section where drying takes place. Material is fed to the dryer through the feed breeching by means of a chute.

Hot gases are drawn into the dryer by means of a stainless fan with an insulated housing. Fan also draws in excess air for tempering the hot gases. In addition there is a damper in the duct so that the amount of gases to dryer may be controlled.

CHEMICAL PROCESSING

clarify
wastes
at least
cost...

the Cyclator®

*meets disposal requirements
best...*

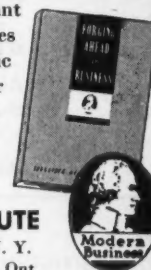
- 1 Because the Cyclator combines recirculation for more complete clarification and faster settling with mechanical thickening for maximum sludge compaction...you gain greatest B.O.D., oil and suspended solids reduction at considerably higher flow rates than in "old style" disposal plants.
- 2 Because the Cyclator increases purification rates and eliminates the need for large chemical mixing, coagulating and settling basins, you save space...save on first costs.
- 3 Case histories of Cyclator operation dramatically

(continue to next page)



the high cost of living!

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on handy form, pgs. 2-3

FACT

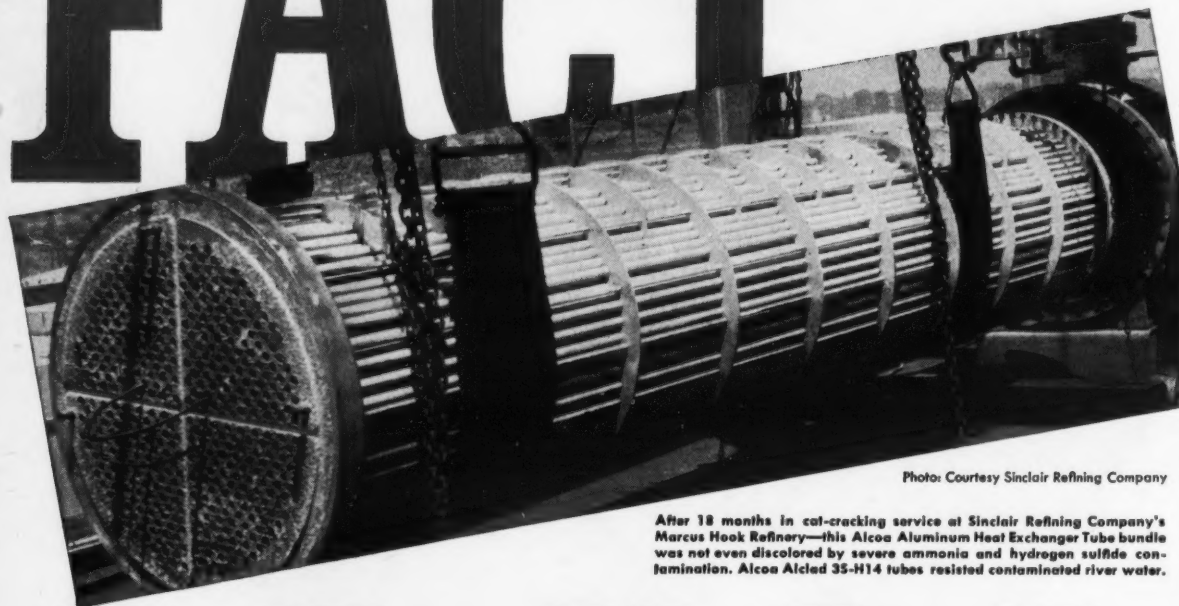


Photo: Courtesy Sinclair Refining Company

After 18 months in cat-cracking service at Sinclair Refining Company's Marcus Hook Refinery—this Alcoa Aluminum Heat Exchanger Tube bundle was not even discolored by severe ammonia and hydrogen sulfide contamination. Alcoa Alclad 35-H14 tubes resisted contaminated river water.

ALCOA

knows most about the use and application of aluminum heat exchanger tubes

Alcoa pioneered the use of aluminum in heat exchanger tubes 43 years ago. Although their sale today is limited by government regulation, you will want to start planning with a copy of the booklet, "Alcoa Aluminum Heat Exchanger Tubes." Write:

ALUMINUM COMPANY OF AMERICA • 1861D Gulf Building, Pittsburgh 19, Pa.



OVER 6-MILLION FEET OF ALCOA TUBES ARE IN USE FOR APPLICATIONS LIKE THESE . . .

PETROLEUM

Condensers handling hydrocarbon fractions from such processes as Thermal and Catalytic cracking, reforming, polymerizing, etc.
Vapor recovery condensers
Lube oil coolers
Natural gas compressor after-coolers
Recompressor aftercoolers
Hydrogen sulfide gas coolers
Furfural condensers and heat exchangers

Propane chilling

Wax sweaters
Lean oil—rich oil exchangers
Amine solution coolers
Glycol-amine heat exchangers and reboilers
Jacket water coolers

CHEMICAL

Butanol
Ethanol
Ethylene Glycol
Glycerin

Hydroabietyl

Isopropanol
Methanol
Phenol
Propylene Glycol
Acetaldehyde
Formaldehyde
Furfural
Heptaldehyde
Acetic acid
Stearic, Palmitic, Maleic Oleic acids
Butyric acid
Naphtha

Ricinoleic acid

Acetanilide
Ammonia
Hydrogen Cyanide
Nitric acid (concentrated)
Pyridine
Hydrogen Sulfide
Benzene
Dichlorobenzene
Gelatin
Hydrogen Peroxide
Turpentine
Xylene

Use Alcoa Alclad 35-H14 Heat Exchanger Tubes with fresh, brackish and salt-cooling waters

When inquiring check CP 1595 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

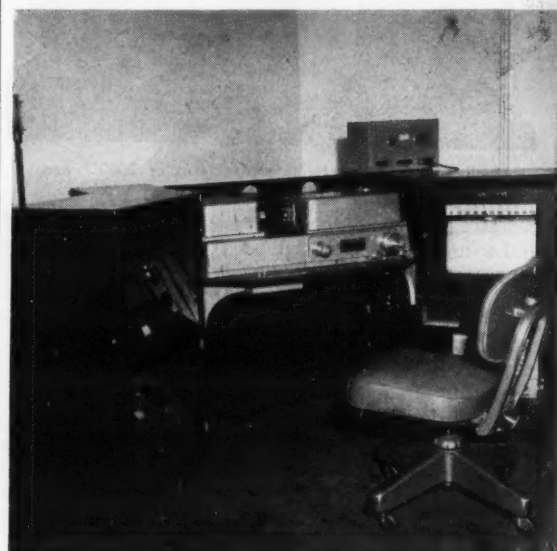
Basic Control Techniques Employ Spectrometry — and Work

Tests of multitudes of organics at A. B. Dick Company are speeded and made meaningful

PROBLEM: "Quality control" can mean a good many things. At the A. B. Dick Company it used to mean hundreds of tests on hosts of products, intermediates, raw materials. As an established supplier of graphic art materials, the company has its share of craftsmen — men who know "good" ink by its consistency, "feel," or other intangible reference properties. But supplying a diversity of materials in quantity, and purchasing equally diverse raw materials meant that the company had to have meaningful test results which could be recorded and referred to.

Conventional laboratory tests — pH, viscosity, saponification number — sometimes told the story; sometimes did not.

Solution: About six years ago the company decided to try infrared spectrometry. This was a hunch, an experiment, because at that time (and even now) most chemists look on spectrometers as research tools for



Entire unit with accessories is mounted in mobile cabinet, can be moved to any site where water and power are available

work on pure compounds or (as in the refinery) checking known mixtures. Materials and research at A. B. Dick Company, however, fit into the well-known definition of colloid chemistry — "A study of gunks, goos, and messes."

Instrument selected was a Perkin-Elmer Model 12AB infrared spectrometer. This unit with its amplifier and accessories was placed in a mobile cabinet so that it could be moved to any place where 110v AC and water were available. As a unit it can be moved to a convenient location, connected, and warmed up in less time

than it takes to set up for many ordinary colorimetric procedures.

Here are a few of the things that happened as the organization learned applications of this instrument:

Plastic materials were constantly being purchased for conversion into mimeograph supplies. Suppliers' never-ending search for new plasticizers and stabilizers, and improved processes often resulted in minor changes in the plastics' properties. In one development project where the company is trying to have a material tailored-



Spectrometer tests cover all phases of operations in the plant

to-fit, they have received six batches in eight years and while color, smell, consistency, and other properties remained the same, some worked and some did not. Spectrographs enable the company to spot likely batches and assist the supplier in preparing them.

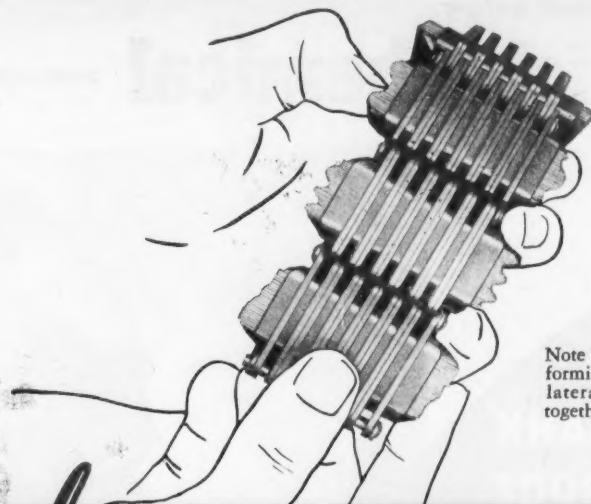
In fact, the company has come to the conclusion that spectrograms are often more important than specifications in purchasing plastic materials for their use.

Ethyl acetate was another nuisance to the control labs. Both technical (85%) and CP (99%) grades were purchased in quantity and stored — being used in small amounts. Alcohol content was a prime consideration. Water content also spoiled the product during storage. Formerly the lab ran standard saponification number tests. These took three to four hours; required skilled handling and standard acids, bases. Now the lab checks absorption in the hydroxyl absorption band. Accurate results are available in a few minutes.

A very similar situation existed with oil-impregnated papers. In this case complete extraction and drying of the oils was followed by conventional quantitative and qualitative analyses. This difficult job provided plenty of information — but most of it was not timed to be usable. Now the lab soaks a small paper sample (from one sheet) in solvent for a few minutes, checks the extract directly in spectrometer, and compares curve to that of previously proven paper.

One of the neatest jobs done by the spectrometer is estimation of chlorinated hydrocarbon fumes going to one of their recovery plants. Trichlorethylene, used as a solvent in a paper coating operation, is recovered from

(Continued on next page)



Note how slats in the self-tooth-forming chain are free to move laterally — either singly or together.

Only the P.I.V. variable speed drive uses SELF-TOOTH-FORMING CHAIN to give you positive, stepless speed changing

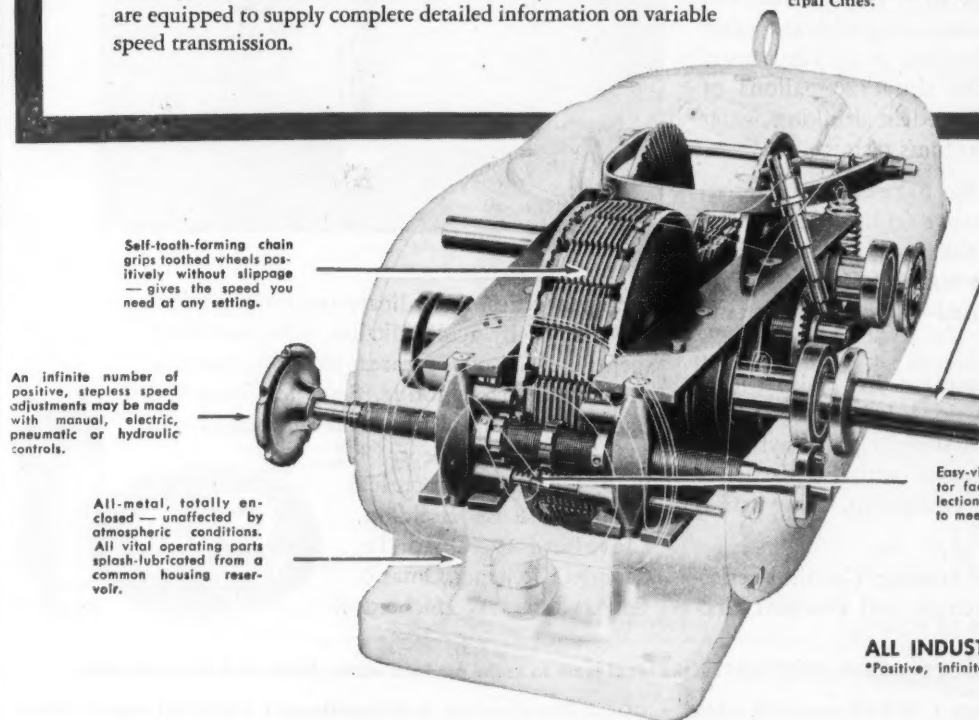
The operation of Link-Belt's P.I.V. Variable Speed Drive is not dependent upon friction for power transmission.

That's because only Link-Belt's P.I.V. has the self-tooth-forming chain that allows *positive*, stepless speed adjustment.

If you've been looking for exact speed changing that will deliver full rated horsepower to your machines, it will pay you to call your nearest Link-Belt branch office, as our representatives are equipped to supply complete detailed information on variable speed transmission.



LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 3, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in Principal Cities. 12,272



Self-tooth-forming chain grips toothed wheels positively without slippage — gives the speed you need at any setting.

An infinite number of positive, stepless speed adjustments may be made with manual, electric, pneumatic or hydraulic controls.

All-metal, totally enclosed — unaffected by atmospheric conditions. All vital operating parts splash-lubricated from a common housing reservoir.

You can get minute speed changes and maintain them accurately while operating under full load.

Easy-view speed indicator facilitates speed selection and adjustments to meet all requirements.

ALL INDUSTRY USES P.I.V.*
*Positive, infinitely variable

When inquiring check CP 1596 on handy form, pgs. 2-3

Another new development using

B. F. Goodrich Chemical raw materials

NEW
RIGID PLASTIC TANK
CAN'T CORRODE

Made throughout
of GEON 404
—no metal used!

HERE'S a new development that shows how Geon 404, a new rigid vinyl plastic, can solve costly problems involving acids and other corrosive elements. The tank is used in a water supply plant. It holds about 20 gallons of hydrofluosilicic acid, used in drinking water to help and protect hardness of teeth.

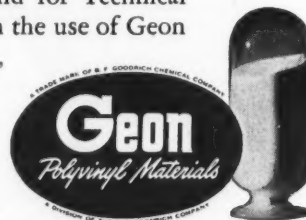
Naturally, the tank has to be extremely resistant to the highly corrosive acid. And it is, from top to bottom! For the tank, and every nut, bolt and stud in it are made of Geon 404 rigid plastic. No metal is used—no part of this tank can ever corrode.

Geon 404 has advantages that make it ideal for many rigid applications. It possesses all the excellent properties of straight polyvinyl chloride. It can be processed without plasticizer addition on standard equipment, using standard methods.

Geon 404 has outstanding chemical resistance, exceptional strength and excellent elec-



trical properties. At ordinary temperatures it is not affected by acids, alkalis, salts, oxidizing agents . . . or oils, greases, alcohols, gasoline and carbon tetrachloride. Send for Technical Bulletin and helpful advice on the use of Geon 404. Please write Dept. GE-2, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario. Cable address: Goodchemco.



GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

When inquiring check CP 1597 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

(Continued from preceding page)

a fume-duct system servicing some of the operations. Former method of checking its volume in the fumes had been to freeze a large metered sample, digest it in sodium hydroxide solution for 12 to 18 hours, and analyze for chloride ion. Now a small metered sample is absorbed on silica gel, slurried in acetone and percent trichlorethylene is read (accurate to 0.5%) by the instrument.

Results: These typical cases, and many others not cited here, have this in common: results of testing have a real meaning in performance of the material; they are easily recorded for future reference; tests themselves are frequently far simpler than conventional methods; and tests require only small quantities.

Dr. T. U. Marron, Research Supervisor at the plant, likes to sum it up this way, "The spectrometer fingerprints these compounds, but doesn't tell you their names." By referring to the fingerprints of known offenders or known desirable materials, the instrument gives practical, working information.

(Equipment furnished by Perkin-Elmer Corporation, Dept. CP, Norwalk, Conn. . . or for more information check CP 1598 on handy form, pages 2 and 3.)

Describes micro switch contacts in illustrated sheet

A "make-before-break" snap action switch is described in detail with diagrams on manufacturer's data sheet. Explanation is given of the functioning of two moving contacts in closing the normally-open circuit before the normally-closed circuit is opened. Data sheet points out how the "make-before-break" principle insures continuity in the operation of an electrically-controlled multi-stage machine, where a temporary complete break in both circuits would otherwise result in stoppage. Characteristics, electrical range ratings, and dimensions of the switch are completely covered.

Data Sheet No. 63 is issued by Micro Switch Corp., Dept. CP, Freeport, Ill. When inquiring specify CP 1599 on handy form, pages 2 and 3.

Credit \$2000 yearly saving to storage of steel under controlled humidity . . .

steel good as new after 11-mo storage at 40% RH; used to rust after 24-hr storage

Eleven months ago several coils of highly polished, completely degreased carbon steel were placed in the store room at The Kenilworth Steel Company as an experiment. Under ordinary conditions the steel would have started to rust and oxidize within 24 hours. But without oiling or any other treatment the steel is still as bright and clean as the day it was put on the shelf.

A dehumidifier which holds the relative humidity in the store room to 40% did the trick. According to the plant manager at Kenilworth, a conservative estimate of saving in tangible factors such as labor, oil, and inspections would amount to \$2000 in a year. In addition, intangible factors of care over pre-storage and periodic in-storage oiling and inspections have been eliminated.

Prior to installing the dehumidifier, Kenilworth inspected incoming steel for signs of rust, and either oiled or greased the steel before it was put in storage. During the storage period the highly perishable stocks of shim steel, feeler

CHEMICAL PROCESSING

gage stock, and tempered spring steel were periodically oiled and inspected.

By eliminating these steps the firm finds its storage area is cleaner and plant housekeeping is less of a problem. Oiling and inspection is done only once, just before the steel is shipped.

In spite of the fact that store room walls and doors were not sealed, the dehumidifier maintains a 40% constant relative humidity. The steel appears to be as perfect as the day it came from the production lines.

(Dehumidifier is a product of the Pittsburgh Lectro-dryer Corporation, Dept. CP, Pittsburgh 26, Pa. . . or for more information check CP 1600 on handy form, pages 2 & 3.)

Improved application technique puts Teflon on several wires at one time . . .

"three-dimensional" calendaring puts plastic on several wires, rotary trimmer separates them

Teflon-coated electrical wire is expected to be easier to produce with an improved calendaring-trimming operation. Necessary equipment and technique was described by Wilton A. Hawkins, DuPont Teflon specialist, at a conference of the Society of the Plastics Industry.

Coatings between 15 and 50 mils thick may be simultaneously applied to almost any number of wires in a continuous operation. This "three-dimensional" calendaring involves feeding the bare wires together with Teflon powder into the nip of grooved calender rolls. Sufficient pressure is used to cold-form the plastic around the wires.

Wires are fed through straighteners and a series of parallel guides before entering the rolls. Powder is fed right into the rolls by a vibrating hopper. The cold-coated wire is then passed into a sintering oven or bath where the coating is fused at about 750°F. Finally, the wires pass into a rotary trimmer which splits them for separate reeling.

(Courtesy of E. I. du Pont de Nemours and Company (Inc.), Dept. CP, Wilmington 98, Del.)

Plugs tank car leaks until repair work can be done . . .

asbestos fiber is even usable with pharmaceutical and food items, has been approved by FDA

When small leaks developed in a tank car loaded with liquid, past practice has been to sidetrack it, transfer the load to another car, and send the leaky car to a repair station. A recent stop-gap technique, however, has been accepted by the Pure Food and Drug authorities, the Department of Agriculture, and the Association of American Railroads. It consists of putting a slurry of asbestos fibers into the car — current of the leak carries the fibers to the leak site, bridges the opening, and keeps the car in service until it has been unloaded at its destination.

Used with most liquids such as bulk wines, acids, molasses and syrups, or fuel oils, the Association of American Railroads recommends that some of the liquid be withdrawn and slurried with the asbestos fiber. This speeds dispersion of the fiber when it is returned to the car.

(Fiber is mined and processed by Hercules Filter Corporation, Dept. CP, Paterson, N. J.)

Hooker Chemical Guide (ONE OF A SERIES)

Use this handy reference to save time in selecting high-quality chemicals.

MONOCHLOROBENZENE

Synonym: Phenyl Chloride
Formula: C_6H_5Cl
Appearance: clear, colorless liquid



TYPICAL PROPERTIES

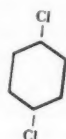
Molecular Weight	112.5
Freezing Point	-44°C
Distillation Range	131.2° to 132.2°C
Specific Gravity, 15.5°/15.5°C	1.114

USES

INSECTICIDAL INTERMEDIATE: DDT and other insecticides.
DYESTUFF INTERMEDIATE: sulfur black and brown dyes.
CHEMICAL INTERMEDIATE: organic synthesis.
SOLVENT: paints, varnishes, lacquers, paint removers; general use.
HEAT TRANSFER FLUID: suggested for condensing vapor systems, such as glass enameled vessel jackets, which cannot stand high steam pressures.

PARADI®

(Hooker Paradichlorobenzene)
Synonym: 1, 4-Dichlorobenzene
Formula: $C_6H_4Cl_2$
Appearance: white crystals
7 SIZES—Pea No. 1, Pea No. 2, Rice No. 1, Rice No. 2, Rice No. 3, Granulated, Powdered.



TYPICAL PROPERTIES

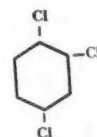
Molecular Weight	147.0
Melting Point	53°C
Boiling Point	173°C
Flash Point	73°C

USES

INSECTICIDE—REPELLENT: peach tree borers, black peach aphids, tobacco blue mold, clothes moths, carpet beetles, fish moths, garden centipedes.
HERBICIDE: used in cranberry bogs.
DEODORANT: in sanitary specialties, disinfectants.
INTERMEDIATE: organic synthesis; many dyestuffs including sulfur, azo, anthraquinone.

TRICHLOROBENZENE, Tech.

Formula: $C_6H_3Cl_3$
Appearance: clear, almost colorless liquid



TYPICAL PROPERTIES

Molecular Weight	181.5
Freezing Point	10°C
Distillation Range	205° to 235°C
Specific Gravity, 15.5°/15.5°C	1.465

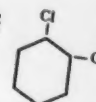
USES

INSECTICIDE: soil poison for termites.
SOLVENT: fats, oils, waxes, resins; crystallization solvent.
HEAT TRANSFER MEDIUM: condensing vapor systems, 210° to 300°C.
DIELECTRIC FLUID: transformers.
INTERMEDIATE: dye intermediates, other organic chemicals.

HOOKE CHLOROBENZENES

ORTHODICHLOROBENZENE

Synonym: 1, 2-Dichlorobenzene
Formula: $C_6H_4Cl_2$
Appearance: clear, colorless liquid



TYPICAL PROPERTIES

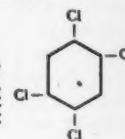
Molecular Weight	147.0
Freezing Point	-18° to -22°C
Distillation Range	4° incl. 179.5°C
Specific Gravity, 15.5°/15.5°C	1.310

USES

INSECTICIDE: termites, powder post beetles, wood borers, midges, flies, roaches, bed bugs, etc.
SOLVENT: gums, resins, tars, rubber, greases, oils, fats, waxes. Readily emulsified.
DEGREASING AGENT: metals, leather, hides, wool.
INTERMEDIATE: organic chemicals, dyestuff intermediates.
IN COMPOUNDED SPECIALTIES: metal cleaners, polishes, paint and varnish removers, etc.
HEAT TRANSFER FLUID: suggested for condensing vapor systems in temperature range 180° to 200°C.

1, 2, 4, 5-TETRACHLOROBENZENE

Formula: $C_6H_2Cl_4$
Appearance: white flakes



TYPICAL PROPERTIES

Molecular Weight	215.9
Chlorine Content	65.7%
Melting Range	137.5° to 140°C
Distillation Range	240° to 246°C

USES

INTERMEDIATE: 2, 4, 5-trichlorophenol; 2, 4, 5-trichlorophenoxyacetic acid; azo dyes.
INSECTICIDE: slightly active; suggested for dusting powder formulations.
IMPREGNANT: for fire and moisture resistance, electrical insulation; temporary protection in packaging.

• For detailed information on items listed, drop us a note on your letterhead. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 15 Forty-Seventh St., Niagara Falls, N. Y.

HOOKE ELECTROCHEMICAL COMPANY

NIAGARA FALLS, N. Y. • TACOMA, WASH. • WILMINGTON, CALIF.

From the Fall of the Earth

When inquiring check CP 1601 on handy form, pgs. 2-3

**HOOKE
CHEMICALS**

Tall Oil Rosin

with Texture of Fudge Candy Keeps Composition and is Easy to Handle

Makes a big difference over conventional product that consists of solid, slush, liquid portions

IF tall oil rosin is being used as a starting material for varnishes, interior enamels, soaps, or one of a variety of other industrial products . . . *then* a more easily handled form of tall oil rosin should be a development of significant value!

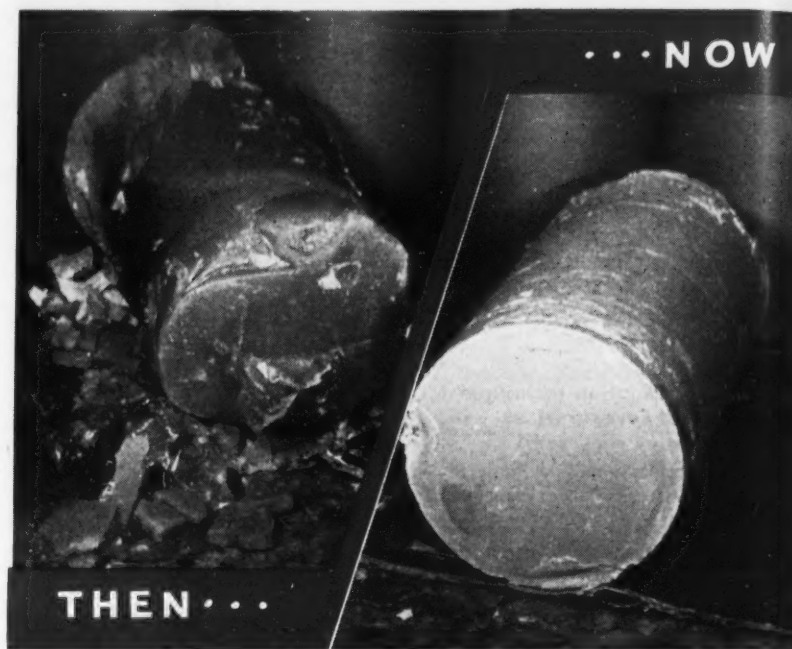
Problem: The conventional rosin is an unwieldy mass — consisting of hard rosin, some fatty acid-rosin slush, and a portion of liquid fatty acids. If a varnish maker, for example, cut open a steel drum, the liquid portion ran over his floor and left a sticky mess. Portion left in the drum was a hard cake that clung stubbornly to the walls. Most serious drawback was that the usable, or salvageable, portion did not have the same specifications as the original composite mass of tall oil rosin.

Ultimate composition at the time of use could not be entirely assured by using smaller, fibre drums, either. This was tried, but the solid rosin settled and the liquid fatty acids bled through the sides of the drum.

Neither could composition be maintained by plastic-lined fibre drums, because the high temperature of the rosin required for filling melted away plastic.

Solution: General Mills has developed a distillation process for making a tall oil rosin fraction that behaves itself. It is known as Aliphath 45-A, and has the same specifications as conventional rosins (such as maker's 45-B).

While hot it is poured into fibre drums and soon sets to a dry, uniform solid. Texture — comparable to that of fudge candy — prevents it from bleeding through the drum walls. With three deft strokes with a linoleum knife a user can strip away the fibre to leave a solid, ready-to-use cylinder of tall oil rosin with definitely known composition. Rosin can be readily broken up and fed efficiently to processes without creating a mess.



ALIPHATH 45-A TALL OIL ROSIN

	Maximum	Minimum
Acid Value	185	175
Unsaponifiable Matter, %	6	—
Color, Gardner 1933	10	—
Moisture and Volatile, %	0.5	—
Rosin Acids, %	74	67

(Product of General Mills, Inc., Dept. CP, 2010 East Hennepin Avenue, Minneapolis 13, Minn. . . or for more information check CP 1602 on handy form, pages 2 and 3.)

THE recent development of plastigels (CHEMICAL PROCESSING, February 1952, page 26), based on Vinylite resins, has gained considerable interest in the plastics fabrication field. It might be well to expand a bit upon applications so that their real import can be appreciated.

Plastigels may be handled by many of the conventional methods of fabricating plastics, but the pressures required are lower, leading to lower machine and mold costs. Extrusion is one process particularly well adapted to plastigels. The pressures required for extrusion of plastigels are but a small fraction of those required for hot processing. Die design is not difficult since, under the low pressures used, there is little distortion in the extruded shapes. High speeds can be achieved because the products have sufficient cohesion that they may be fused subsequent to the extrusion.

Tubing and sheeting has been extruded and subsequently

Vinyl-resin-based Plastigels — More on Application

This will give an idea how they can be fabricated — tubing, sheeting, embossing, calendering, hand modeling, potting, cloth and paper coating, dip coating

cured by festooning in an oven, without measurable distortion. Extrusion into a hot bath has proven even more desirable because of the supporting effect of the liquid and the faster heat transfer.

Tubing has been successfully fabricated with a low-pressure rubber extruder. It is probable that machinery designed

for the extrusion of clay or ceramic products can be readily adapted to fabricating plastigels into pipe, tile, and other similar products.

Embossing of unfused plastigels is a relatively easy process since only low pressure at room temperature is required. In the laboratory, fabrics have been used to emboss sheeting using low pressures. Moisture on the fabric serves as an excellent release medium and imprints are maintained with good fidelity during the fusion process.

Calendering of plastigels under low pressures is feasible for coating cloth, paper, felt, and similar materials or for preparing unsupported sheets. The products may then be fused after application.

Molding and stamping offer promise as simple methods of fabricating plastigels. Very fast cycles are possible since the objects merely need to be formed in the mold and may be fused in a subsequent operation. Delicate inserts are

not disturbed because only low pressures are required. Excess material squeezed from the mold may be reused since it has not been fused at this stage. Mold costs are relatively low because of lighter weight construction, and because special platings or facings are not required as room temperature processing prevents thermal degradation of the resin.

Compounds suitable for hand modeling have been made in an unlimited range of colors. These products may be formulated to attain a wide range of hardness. Filled compounds have much the same working characteristics as ordinary modeling clay but with the advantage that they may be cured at temperatures available in a conventional oven. Models, flexible molds, tool handles, orthopedic and prosthetic appliances are a few of the objects modeled from plastigels. The lower density and non-shattering qualities of plastigels suggest that they may replace ceramics for equipment to resist inorganic acids and alkalis at room temperature. Caulking compounds and tailor-made gaskets which may be fused in place are other possibilities of using this new technique.

Since only low pressures are required to form plastigels, they can be applied as potting compounds for protecting coils and intricate electrical connections without disturbing delicate connections. Flexibility and low shrinkage during curing are valuable properties in this type of application.

Spreading on cloth or paper at high speed requires products of relatively low viscosity. Plastigels thinned with volatile diluents spread readily and, after the mild drying required to evaporate the diluent, regain their plastigel properties. Thus the coated products may be rolled, embossed, or otherwise handled before fusion if desired. Advantage can be taken of the control of flow offered by the plastigels to coat open-weave cloth or to prevent penetration of coating into porous surfaces.

Dipping of heavy, uniform coatings is facilitated with plastigels since it is not necessary to preheat the object before dipping to prevent sagging and dripping. Normally, only a low yield value is required to prevent dripping, thus the concentration of thickening agent need not be very great.

Wire and cordage may be more uniformly dip-coated by taking advantage of the thixotropy of plastigels. Even heavy coatings of dispersions applied by spraying can be more readily controlled with gelling agents than by the evaporation of volatile diluents.

Plastigels furnish another method of using the versatile vinyl chloride resins in a dispersion form. The use of simple equipment means that little capital outlay is required to start production. Vinylite resin-based plastigels offer an economical means of producing intricate molded, embossed, extruded, dipped, or stamped plastic products.

(Commercial formulators will be furnished the basic Vinylite resins and the technical information required to formulate Vinylite plastigels, by Bakelite Company, A Division of Union Carbide and Carbon Corporation, Dept. CP, 30 East 42nd Street, New York 17, N. Y. . . . or for more information check CP 1603 on handy form, pgs. 2-3.)

Information about nearly fifty ethylene oxide condensates

Information on nearly fifty ethylene oxide condensates is included in an 8-page, 2-color booklet. A chart lists compositions, appearance, and solubility in aqueous and non-aqueous solutions. "Nopacol Ethylene Oxide Condensates" is issued by the Nopco Chemical Company, Inc., Dept. CP, Harrison, New Jersey. When inquiring specify CP 1604 on handy form, pages 2 and 3.

APRIL, 1952

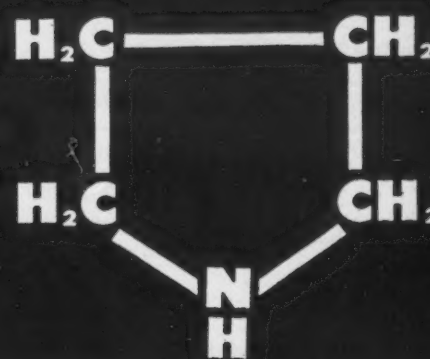
AVAILABLE IN DEVELOPMENT QUANTITIES FROM DU PONT

PYRROLIDINE

PHYSICAL PROPERTIES

Appearance	Colorless, mobile liquid
Odor	Penetrating, amine-like
Molecular Weight	71.12
Freezing Point (Tech. Grade)	-63°C.
Boiling Point	86-87°C.
Specific Gravity, 20/4	0.8618
Index of Refraction, N ₂₀ /D	1.4430
Flash Point (Tag Closed Cup)	3°C.
Solubility	Miscible with water and most organic solvents

In water forms base with dissociation constant of 1.3×10^{-8} .



This cyclic secondary amine is now being produced synthetically and is potentially available in commercial quantities. A wide variety of unusual compounds can be formed by reactions involving addition, condensation, acylation, and alkylation. Outstanding chemical properties include the following:

Moderately strong organic base. Solubilizer for acidic materials.

Functions as a catalyst and reaction medium for certain organic reactions.

Highly reactive, versatile chemical intermediate which may afford a practical way to make profitable products. For example:

- With carbon disulfide, yields rubber accelerators similar to those obtained from piperidine.
- With alkyl halides, gives N-alkyl pyrrolidines which can be converted to quaternary bases of possible use as sterilizers and surfactants.
- Useful for introducing the pyrrolidyl ring, a physiologically active nucleus found in many natural products such as alkaloids.
- With ethylene oxide, gives an alkanolamine, N-hydroxyethyl pyrrolidine.

A REQUEST on your company letterhead will bring technical bulletins and price information. Just write to E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Field Research Section, Wilmington 98, Delaware.

DU PONT
ELECTROCHEMICALS



Radioactive Thallium for Radioactive Isotopes - General Chemistry

When inquiring check CP 1605 on handy form, pgs. 2-3

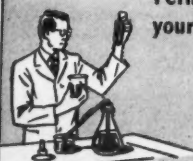
A New Addition To The Family



As one of the largest producers of Sulfuric Acid for well over a quarter of a century, naturally our initial interest in organic chemicals is centered around ORGANIC SULFONIC ACIDS and their derivatives. Intensive research has developed a new approach to this basic reaction and a new plant employing a revolutionary Sulfonation process is under construction.

Pilot plant quantities of many unusual Sulfonates are now available. We are particularly interested in tough or unusual sulfonation reactions.

Call, wire or write us.
Perhaps we can solve
your problems.



ORGANIC CHEMICALS DIVISION
TENNESSEE T C CORPORATION
619 Grant Building, Atlanta, Georgia



Comparative views of masonry window sills, showing how water repellent treatment prevents water from soaking in. Although invisible, the silicone treatment resists oxidation, atmospheric erosion, and the passage of efflorescence

Masonry Repels Water 24 Hr After Applying Silicone-resin-based Finish

USES: Silicone resin for formulating water repellent finishes for above grade concrete and masonry walls.

Features: Properly formulated finishes keep water from wetting and penetrating the pores of masonry. Treated walls are reported to stay clean longer and efflorescence is said to be greatly reduced. Tests indicate that the effective life of treatment under normal conditions is about 5 years. Color and texture of treated masonry is unchanged. Non-plugging nature of finish allows the masonry to breathe. Application may be by brushing or spraying at any time that outdoor work is practicable. Water repellency is developed in 24 hours or less after application.

Description: A long-lasting water repellent can be formulated by mixing 3 to 5% (by volume) of Silicone Resin XR-129G with a suitable solvent. No heating is required. Solvents having the following general specifications are recommended: 85°F minimum flash point; 75 minimum Kauri Butanol Number; and 275-350°F boiling range.

It has been found that a solution containing at least 3% by weight of XR-129G is required for an effective water repellent coating. Masonry coated with a 5% solution

**Tests indicate that the effective
life of treatment is 5 years under
normal conditions**

appears to be much more water repellent than when coated with a 3% solution, even though there is relatively little measurable improvement in water absorption. Durability of the 5% solution is evident.

Solutions show a tendency to foam when agitated. This can be eliminated by filling containers with a tube or hose to carry the fluid down to the bottom of the can or drum. XR-129G and its solutions (in suitable solvents) are not corrosive and can be shipped in standard metal containers. Shelf life of dilute solutions appears to be indefinitely long, provided moisture is excluded (reaction takes place with water to form an insoluble precipitate).

PROPERTIES OF XR-129G SILICONE RESIN

Color	Light Straw
Viscosity, 77°F, cp	5-50
Specific Gravity, 77°F	1.00-1.20
Solids, % by wt in xylene	90

(XR-129G Silicone Resin is supplied to formulators of water repellent finishes by Dow Corning Corporation, Dept. CP, Midland, Mich. . . or for more information check CP 1607 on handy form, pages 2 and 3.)

CHEMICAL PROCESSING

**Gadolinium and samarium
availability upped by
new process . . .**

high purity salts in quantity now possible by unique separation process; have many interesting uses

Uses: Samarium and gadolinium have extremely high neutron cross-sections, which means that they may be of value in nuclear physics as neutron absorbers. They may also have a potential use as activators in phosphors.

Gadolinium has been used to produce temperatures approaching absolute zero — the method depends upon the fact that gadolinium sulfate octahydrate when placed in a magnetic field becomes heated. If this effect is carried out in an insulated vessel containing helium under low pressure, and the helium is then pumped off and the magnetic field removed, the gadolinium sulfate cools to a temperature lower than that at the start of the process.

Features: Extensive research undertaken by this concern has resulted in a highly refined process (fractional crystallization) together with chemical technics that greatly simplify the separation of gadolinium and samarium from other rare earth mixtures. Until now, gadolinium and samarium salts were available only in pound lots.

Although present production of these salts is still in the pilot plant stage, raw materials and production capacity are available to produce in relatively large quantities.

Actually, production of the salts is limited only by availability of raw material (present production comes from by-products in refining lanthanum and neodymium salts; other sources of gadolinium and samarium are available should there be a demand.

Description: Currently being offered are the oxides and oxalates, as well as the common salts such as nitrates, chlorides, etc. Purity of the salts is the same as that of the oxides and oxalates, the only difference being in the amount of contained total rare earths. Gadolinium oxalate, for example, contains 48% rare earth oxide, and 98% of the rare earths is gadolinium. Purities are based on the composition of the rare earth oxide. Following is a tabulation of purities offered:

RARE EARTH OXIDE COMPOSITIONS

Samarium Salts, 99%		Gadolinium Salts, 98%	
Sm ₂ O ₃	99%	Gd ₂ O ₃	98%
Gd ₂ O ₃	0.2-0.7	Sm ₂ O ₃	0.2-0.7
Eu ₂ O ₃	0.2-0.6	Nd ₂ O ₃	0.2-0.9
Other rare earth oxides	balance	Dy ₂ O ₃	0.1-0.9
	100%	Other rare earth oxides	balance
			100%
Mixed Samarium-Gadolinium Salts			
Sm ₂ O ₃	50-55%		
Gd ₂ O ₃	25-30		
Nd ₂ O ₃	1-5		
Pr ₂ O ₃	1-4		
CoO ₂	0-1		
Eu ₂ O ₃	1-1.5		
Other rare earth oxides + Y ₂ O ₃	8.5-17		
	100%		

Higher purities than those specified above can be produced, maker reports.

(Salts of gadolinium and samarium are produced by the Lindsay Light & Chemical Company, Dept. CP, West Chicago, Ill. . . or for more information check CP 1608 on handy form, pages 2 and 3.)

APRIL, 1952

since 1919...



*Nothing takes the place
of Glycerine*



The Jones-Dabney Division of Devoe and Raynolds Company began using Glycerine to produce alkyd resins over 30 years ago. Today, the same Glycerine-derived alkyds which are used for every industrial coating application from bobbypins to battleships—can also be found in the famous Devoe line of enamels and interior finishes.

FULLY ACCEPTED . . . FULLY AVAILABLE IN ALL GRADES!

First, it was industrial finishes . . . now, in one of the most outstanding recent developments in the industry, Glycerine-derived alkyd resins have been introduced to the entire household interior coating field!

Pioneers in this new application of alkyd resins is America's oldest paint maker: Devoe and Raynolds Co. Inc. For years Devoe has recognized in Glycerine a vital chemical intermediate in the manufacture of its alkyd resins and ester gums. With these Glycerine-derived alkyds, Devoe marine and industrial coatings have earned a world-wide reputation for gloss, brightness and resilience.

Like Devoe, America's leading paint makers have found Glycerine easier to work with in the critical resin-making operation. For light-colored alkyds, Glycerine is available to meet the exacting standards of the color-conscious paint industry.

"Why Glycerine for Alkyd Resins and Ester Gums?" tells the story of these applications with detailed information on the chemical and physical properties of Glycerine. Write for your copy.

GLYCERINE PRODUCERS' ASSOCIATION

295 Madison Avenue, New York 17, N. Y.

When inquiring check CP 1609 on handy form, pgs. 2-3

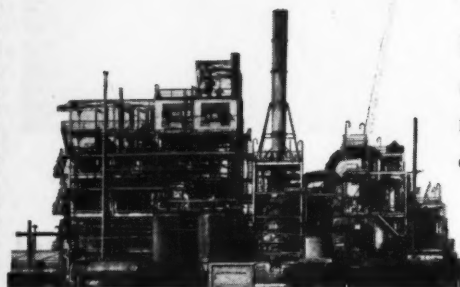
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Uniformity

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Unless you are buying from Barrett, you are not getting the assurance of uniformity that is backed by a basic position in raw materials *plus* nearly 100 years of concentrated experience in coal-tar chemistry.



Barrett is Basic

Barrett* Coal-tar Chemicals

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Cresols
Cresylic Acids
Chlorinated Tar Acids
Xylenols
Pickling Inhibitors
Benzol
Toluol
Xylol
Naphthalene
Hi-Flash Solvent

Phthalic Anhydride
Dibutyl Phthalate
ELASTEX* DCHP Plasticizer
"ELASTEX" 10-P Plasticizer—"D.I.O.P."
"ELASTEX" 50-B* Plasticizer
"ELASTEX" 28-P Plasticizer—"D.O.P."
Phenolic Resins
Niacin (Nicotinic Acid)
Pyridines
Picolines
Quinoline

Lutidines
Tar Acid Oils
Neutral Coal-tar Oils
Coal-tar Creosote
CUMAR* Paracoumarone-
Indene Resin
Carbonex* Rubber Compounding
Hydrocarbon
Bardol* Rubber Compounding
Oil
Flotation Agents

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.
In Canada:
The Barrett Company, Ltd.
5551 St. Hubert St., Montreal, Que.



*Reg. U. S. Pat. Off.

When inquiring check CP 1610 on handy form, pgs. 2-3

MATERIALS

Group of ethoxyline class resins offer a wide range of exceptional prop's . . .

members form thermosetting compounds characterized by chemical and corrosion resistance

Uses: Bonding, casting or coating purposes.

Features: High resistance to corrosion, alkalis and acids; wide range of adhesive properties.

Description: Araldite is a trade name for a series of resins of the ethoxyline class which are condensation products of poly-arylethylene oxide compounds with acid anhydrides, amines, and other compounds. All of the resins harden practically without evolution of water or volatile matter.

Bonding Resins

Araldite Type I thermosetting adhesive is used primarily for bonding metals to metals, glass to glass, or metal and ceramics to metal. It is also used to bond heat resistant materials together, such as asbestos and graphite to aluminum.

It is available as a powder in natural or silver color. In this form it may be dusted over large areas or mixed with inert fillers, such as silica, to impart greater heat resistance or reduced thermal contraction. In stick form, Type I may be used to bond materials together with a technique very similar to soft soldering.

Setting of resin begins at temperatures above 248°F (120°C) with almost no change in volume; storage life is stated to be practically unlimited at room temperatures.

Araldite Liquid Adhesive Type XV is similar in uses to Type I; however, since it is a liquid it fits in where spraying, brushing or dipping of parts is preferred.

It consists of a thermosetting resin dissolved in solvents which volatilize at room temperatures — precuring to leave a thin hard resin on the surface where it is applied. Upon heating, it softens and flows freely at 220° to 250°F (115° to 120°C). After an interval of time, depending upon the temperature, the resin hardens to an infusible solid of great bonding power. In its hardened form, Type XV is odorless, tasteless and non-toxic.

Araldite Cold Setting Adhesive Type 101, a liquid of high viscosity, is prepared by the user immediately before use by adding a hardening agent to it. Setting is at room temperature but can be accelerated by warming to a maximum of 212°F. It is designed for joining non-absorbent materials and is particularly useful for materials of widely different coefficients of expansion.

Araldite Cold Setting Adhesive Type 102, when used with a hardener, produces an adhesive of medium viscosity. It is readily brushed or sprayed and as is true with the previous resins, it requires very little pressure in bonding. Contains solvents which render it flammable.

Casting Resins

Araldite Casting Resin Type B is a solid resin at room temperatures and melts at temperatures of 220° to 250°F to form a thin fluid. Castings are transparent, have great mechanical strength, high temperature resistance, toughness, and good resistance toward atmospheric conditions and chemicals. Plasticizers are not used in the formulation so that it exhibits very stable properties over long periods of time and in a wide range of temperatures.

Coating Resins

Araldite Surface Coating Resin Type 985E, an oil-free

CHEMICAL PROCESSING

MATERIALS

synthetic resin, is suitable for clear and pigmented finishes. After stoving, the coatings have exceptional adhesion to light alloys, tinplate, steel and cast iron. They are flexible and resistant to abrasion, can be deep drawn, are glossy and do not craze. There is outstanding resistance to acids, alkalis, oils solvents and water; taste and smell are absent.

It is supplied as a practically neutral resin solution of medium viscosity and of about 50% solids content.

Araldite Coating Resin Type 970B is supplied as a viscous solution of about 42% solids content. After evaporation of the solvent, the resin cures quickly at temperatures in the region of 400°C to give coatings of outstanding mechanical, chemical and electrical properties.

(Manufactured by Ciba Company Inc., Dept. CP, 627 Greenwich St., New York 14, N. Y. . . . or for more information check CP 1611 on handy form, pgs. 2 & 3.)

Development, properties, uses of wear-resistant materials

Causes for wear of materials used in industry and the development of substitutes by the manufacturer are reviewed in this four-page illustrated technical bulletin.

Development of five basic materials by manufacturer (boron carbide, hot pressed aluminum oxide, cold pressed aluminum oxide, bonded silicon carbide, and bonded aluminum oxide) is summarized. Twelve general properties common to these five materials are listed, as are their applications, and physical and chemical properties.

Uses of these wear-resistant materials are briefly described as: impellers for slurry pumps, cylinder liners, check valves, nozzles in foundry blast cleaning rooms, surface plates, and gage and instrument parts.

Technical Bul WR-2 is issued by Norton Company, Dept. CP, Worcester 6, Mass. When inquiring specify CP 1612 on handy form, pages 2 and 3.

Low exothermic properties credited to 2 versatile polyester resins . . .

can spray-coat practically any surface for chemical, moisture resistance

Two new additions have been made to this manufacturer's line of liquid, air-curing, low-pressure MR polyester resins for laminating, casting, spray coating, impregnating, and molding applications. These are MR-31C and MR-31V, of outstanding interest because of their unusually low exothermic heat developed during cure.

Spray coating of these resins is of particular interest to the chemical field since the resultant film is highly chemical and moisture resistant, and may be applied efficiently to practically any kind of surface — cement, cinder block, stucco, wood, plaster, metal, and plastic. Production of large molded laminates is also possible with these resins.

Blending of the resins is usually easy because styrene is generally not required. They cure tack-free in the presence of air at room or elevated temperatures, even when applied as a thin film by brush or spray. Electrical properties are shown to be good. MR-31C is similar to MR-31V, except that the latter is less viscous (approximately 70 cp) and is modified especially for molded laminates.

(Products of Marco Chemicals Inc., Dept. CP, 1711 Elizabeth Ave., W., Linden, N. J. . . . or for more information check CP 1613 on handy form, pages 2 and 3.)

Are you seeking
these unique
properties?

(CLIP AND FILE)

IT WILL PAY YOU TO INVESTIGATE VICTOR POLYPHOSPHATES

The unusual properties of Victor sodium tripolyphosphate and tetrasodium pyrophosphate make them useful in many applications, and offer possibilities in others. From the data given here, you may see opportunities and want to investigate further. Experimental samples are available. Our research and development staff will welcome your inquiry and be pleased to work with you. Write today . . . on your company letterhead, please.

	SODIUM TRIPOLYPHOSPHATE	TETRASODIUM PYROPHOSPHATE																																																								
Chemical Formula	Na ₅ P ₃ O ₁₀ (Anhyd.)	Na ₄ P ₂ O ₇ (Anhyd.)																																																								
Typical Analysis	Phosphorus Pentoxide (P ₂ O ₅)..... 57.5% Sulfates (SO ₃)..... .07% Fluorine (F)......5 ppm* Arsenic (As ₂ O ₃)......0.1 ppm* Lead (Pb)......0.4 ppm*	Phosphorus Pentoxide (P ₂ O ₅)..... 53.1% Sulfates (SO ₃)......07% Fluorine (F)......5 ppm* Arsenic (As ₂ O ₃)......0.1 ppm* Lead (Pb)......0.4 ppm* *Parts per million																																																								
Types Available	Powdered and Granular	Powdered and Granular																																																								
pH — 1% Sol.	9.7	10.2																																																								
Solubility in 100 Parts of Water	25° C.—14.5 pts. 80° C.—23.25 pts. 40° C.—16.25 pts. 100° C.—32.5 pts. 60° C.—19.25 pts.	25° C.—6.0 pts. 80° C.—41.1 pts. 50° C.—16.5 pts. 95° C.—29.0 pts. 75° C.—46.0 pts.																																																								
Water Softening Efficiency—percentage of phosphate on weight of water required to secure zero hardness toward soap. Test waters contained 2 to 1 ratio of calcium to magnesium hardness.	<table><tr><th>Hardness PPM</th><th>Room Temp.</th><th>140° F.</th><th>180° F.</th></tr><tr><td>50</td><td>0.05%</td><td>0.05%</td><td>0.05%</td></tr><tr><td>100</td><td>0.11</td><td>0.11</td><td>0.09</td></tr><tr><td>200</td><td>0.20</td><td>0.18</td><td>0.15</td></tr><tr><td>300</td><td>0.30</td><td>0.27</td><td>0.21</td></tr><tr><td>400</td><td>0.39</td><td>0.33</td><td>0.27</td></tr><tr><td>500</td><td>0.50</td><td>0.48</td><td>0.33</td></tr></table> <p>Sodium Tripolyphosphate solubilizes both calcium and magnesium soaps.</p>	Hardness PPM	Room Temp.	140° F.	180° F.	50	0.05%	0.05%	0.05%	100	0.11	0.11	0.09	200	0.20	0.18	0.15	300	0.30	0.27	0.21	400	0.39	0.33	0.27	500	0.50	0.48	0.33	<table><tr><th>Hardness PPM</th><th>Room Temp.</th><th>140° F.</th><th>180° F.</th></tr><tr><td>50</td><td>0.21%</td><td>0.21%</td><td>0.21%</td></tr><tr><td>100</td><td>0.38</td><td>0.30</td><td>0.26</td></tr><tr><td>200</td><td>0.56</td><td>0.45</td><td>0.38</td></tr><tr><td>300</td><td>0.66</td><td>0.55</td><td>0.54</td></tr><tr><td>400</td><td>0.75</td><td>0.69</td><td>0.69</td></tr><tr><td>500</td><td>0.88</td><td>0.75</td><td>0.75</td></tr></table> <p>Tetrasodium Pyrophosphate solubilizes magnesium soaps and disperses calcium soaps.</p>	Hardness PPM	Room Temp.	140° F.	180° F.	50	0.21%	0.21%	0.21%	100	0.38	0.30	0.26	200	0.56	0.45	0.38	300	0.66	0.55	0.54	400	0.75	0.69	0.69	500	0.88	0.75	0.75
Hardness PPM	Room Temp.	140° F.	180° F.																																																							
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Stability to Reversion in Hot Water Solutions. (Both products are stable for months in solution at room temperature.)	<p>After 10 hours at 160° F. solution will contain approximately 98% STPP (unchanged), 1.2% pyrophosphate, and 0.8% orthophosphate.</p> <p>After 2 hours at 212° F. (boiling) solution will contain approximately 80% STPP, 12% pyrophosphate, and 8% orthophosphate.</p>	<p>After 10 hours at 160° F.—practically no hydrolysis—solution still contains approximately 100% of original concentration of TSPP.</p> <p>After 2 hours boiling—99% TSPP, 1% orthophosphate.</p> <p>After 20 hours boiling—90% TSPP, 10% orthophosphate.</p>																																																								
Peptizing and Dispersing of Solid Particles.	Both products are very effective, the choice depending on nature of solid particles to be dispersed.																																																									
Prevention of Iron Stains	These phosphates hold iron in solution, preventing stains due to rusty pipes, equipment, or natural iron in water.																																																									

Uses

Water softening. Builder for detergents and soaps—including bar and chip soap (non-blooming). Industrial cleaners. Dispersant for pitch control in paper manufacture. Clay dispersing. Textile processing. Conditioning drilling muds.

Water softening. Builder for soaps and detergents. Conditioning drilling muds. Industrial cleaners subjected to high temperatures for long periods. Stabilizing peroxide bleach baths. Clay dispersing. Textile processing. De-inking newsprint. Tin plating.



VICTOR CHEMICAL WORKS

141 West Jackson Boulevard • Chicago 4, Illinois

A. R. Maas Chemical Co., Division

4570 Ardine Street, South Gate, California

When inquiring check CP 1614 on handy form, pgs. 2-3

The inside story on drying refrigerants



...and other things too

Continually maintaining a *dry* refrigerant is essential to the operation of any refrigeration system. But *how much* moisture is removed is far less important than *how little* is left—even a drop of water can cause expensive breakdowns. An exceptionally efficient drying agent—such as ALCOA *Activated Alumina*—is required for such an exacting job.

That's why Sporlan Valve Company, St. Louis, Mo., put ALCOA *Activated Alumina* inside their Catch-All Filter-Drier, illustrated above. Molded of granulated alumina, the unique porous core dries refrigerants to an end point so low that any remaining moisture is harmless. Moreover, it cannot channel or powder because ALCOA *Activated Alumina* is a thoroughly reliable, non-corrosive drying agent that will not change its form or

properties—will not swell, soften or disintegrate.

Helping to keep refrigerators cold is only one of many jobs ALCOA *Activated Alumina* is doing successfully. Its desiccating properties are finding widespread application in the chemical, food, pharmaceutical and petroleum industries, in air conditioning, and for the maintenance of transformer and lubricating oils.

You should be taking advantage of the economies offered by ALCOA *Activated Alumina*. We'll gladly send you additional information. Write to: ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 606D Gulf Building, Pittsburgh 19, Pa.

Alcoa Chemicals

ALUMINAS and FLUORIDES



ACTIVATED ALUMINAS • CALCINED ALUMINAS • HYDRATED ALUMINAS • TABULAR ALUMINAS • LOW SODA ALUMINAS
ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE • GALLIUM

When inquiring check CP 1615 on handy form, pgs. 2-3

MATERIALS

Improvements credited to line of phthalocyanine blues . . .

easier dispersion, better compatibility and color strength characterize members

Research on phthalocyanine blues has been rewarded in the development of three new products, reported to be superior in properties than original products.

Aquamarine Blue #1670 is a 20% blue paste form. It is dispersed in water and contains a dispersing agent. Application tests indicate that it is particularly suitable for water paints, water colors, latex emulsions, wall paper colors, and natural and synthetic leather finishes. Color strength, compatibility, and dispersion are very good. It does not agglomerate in emulsions. For latex type emulsions, where the blue cannot be ground in and where water dispersible color is required, this blue can be mixed in without grinding. Tests show that the blue is compatible in all commercially available latex emulsion paints.

Synthaline Blue #1950 is a dry phthalocyanine blue that is non-dusting and non-crystallizing. It can be used in the production of any product for which a non-crystallizing blue is desirable. Advantages include ease of grinding, ease of dispersion, and low oil absorption. It differs from maker's formerly announced similar product in easier dispersion, more strength, redder tone, and softer feel (almost like talc).

Synthaline Blue Flushed #1949 composition is 20% blue, 40% long oil alkyd, and 40% solvent. Potential uses are in the manufacture of paints and enamels. Principal features include soft body, complete resistance to crystallization, easy dispersion in paint vehicles, and the fact that no further milling is required.

(Product of Whittaker, Clark & Daniels, Inc., Dept. CP, 260 W. Broadway, New York, N. Y. . . . or for more information check CP 1616 on handy form, pages 2 & 3.)

Standard sample of ore with high chrome now available . . .

51% Cr_2O_3 -ore has been carefully analyzed for chrome, iron, silica, alumina, and magnesia

Chemical, metallurgical, and commercial laboratories in the US, Canada, and the Union of South Africa recently concluded a cooperative study connected with preparing a standard sample of ore with high chrome content. Work and analysis reports were correlated in this country by the Mutual Chemical Company of America. Careful analysis of the sample shows it to contain 50.96% Cr_2O_3 and known amounts of iron, silica, alumina, and magnesia. (Highest present standard of NBS is 36.97% Cr_2O_3 .)

Sample was prepared by a thorough mixing of finely ground Turkish ore. Subsequent analyses proved that the sample is uniform.

(Details of the preparation and review of current analysis methods are available from Mutual Chemical Company of America, Dept. CP, 270 Madison Ave., New York 16, New York.)

Your attention is called to the helpful PROCESSING AND ENGINEERING DATA section on pages 204, 6, 8, & 10.

MATERIALS

Offering interesting amino alcohol for first time . . .

3-aminopropanol has distinct behavior of its component groups

Uses: Suggested for evaluation in the synthesis of soaps, surface active agents, dyestuffs, pharmaceuticals, and resins.

Features: Chemical properties are similar to those of other amino alcohols having primary amino and hydroxyl groups. However, the 3-carbon separation between the two groups results in a behavior more typical of the individual groups than is found in currently available amino alcohols.

Description: 3-Aminopropanol is now being offered in trial-lot quantities for the first time. Formula is: $H_2NCH_2CH_2CH_2OH$. Physical properties are tabulated below:

Appearance	colorless liquid
Boiling point, °C	188 @ 760 mm 65 @ 2-3 mm
Density, gm/ml @ 25°C	0.9794
Refractive index, n _D ²⁵ /D	1.4597
pH of 0.1 M solution	11.95-12.00

(Product of the American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . . or for more information check CP 1618 on handy form, pages 2 and 3.)

High-boiling compound for solvent action

Two-page technical bulletin summarizes physical characteristics and uses of butyl carbitol. Solvent characteristics permit use with oils, dyes, soaps, and gums. At standard pressure, butyl carbitol boils at 230.4°C and has low evaporation rate. Product is both an ether and an alcohol, and finds particular use in formulating nitrocellulose lacquers, synthetic coatings, inks, and other materials.

Bulletin lists properties and shipping quantities. Other uses of compound relate to its value as an intermediate in manufacturer of plasticizers, a "booster" for anionic wetting-agents, and as mutual solvent for specialty soaps.

Bulletin F-7906 is issued by Carbide and Carbon Chemicals Company, Dept. CP, 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 1619 on handy form, pages 2 & 3.

For more information on product at right, specify CP 1620 . . . see information request blank between pages 2-3.



ACCURACY



From time to time every successful paint manufacturer makes a survey to determine whether he is obtaining the best from his equipment, raw materials and sales efforts.

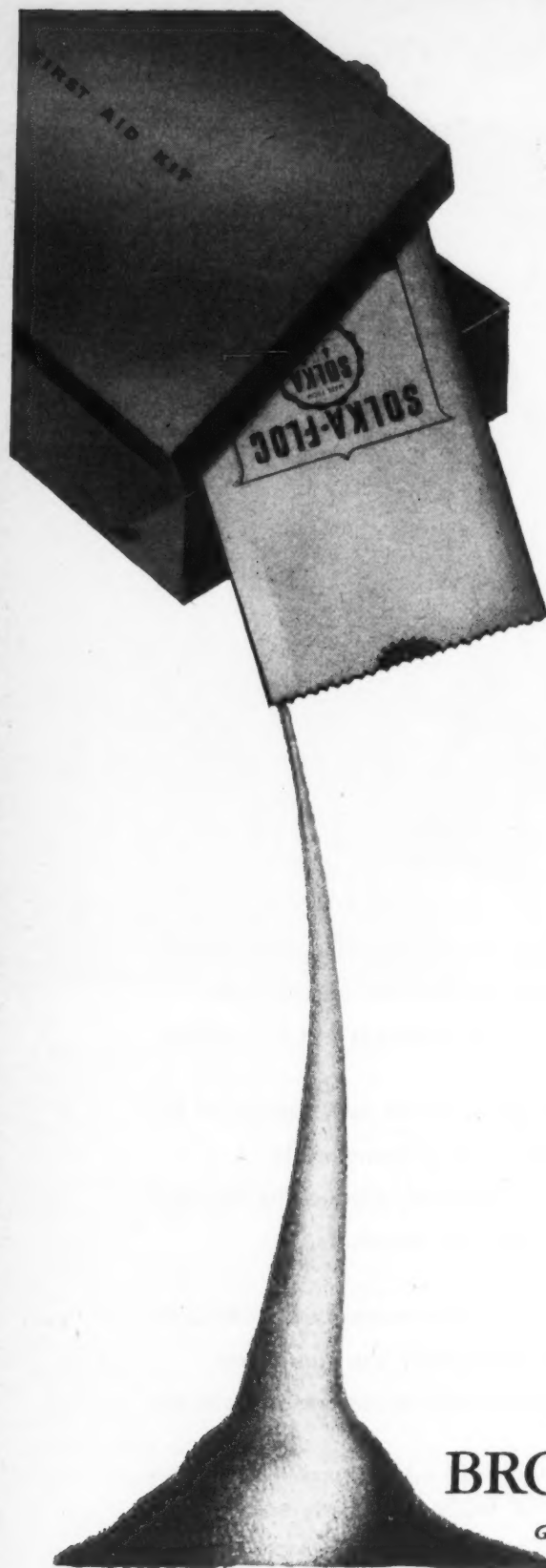
At ADVANCE we welcome such surveys of the usefulness and superiorities of our drier materials and chemical specialties. We produce the chemical tools to assist our process industry customers.

Our line of paint driers is most complete — SOLIGENS, the pioneer naphthenates; ADVASOLS, the economical lineresinates, and HEXOGENS, top-quality octoates.

Also . . . Paint Makers' Specialties • Stabilizers • Plasticizers
Tackifiers • Emulsifiers • Wood and Textile Preservatives

ADVANCE SOLVENTS & CHEMICAL CORP.

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"First Aid" for Filters

In any filtration emergency, SOLKA-FLOC may be just the filter aid you need.

Here's why:

- **SOLKA-FLOC** can prevent abrasion damage in your filtration processes
- **SOLKA-FLOC** can eliminate costly "leak-through"—quickly and safely
- **SOLKA-FLOC** often enables unusually high flow rates
- **SOLKA-FLOC** permits controlled porosity in the filter cake
- **SOLKA-FLOC** saves labor since filters do not have to be cleaned so often

These are only a few of the reasons why SOLKA-FLOC may reduce your filtration problems. Why not find out more about its use as a filter aid? Write our Technical Service, Department BF-4, at Boston, describing your filtration system.

BROWN



COMPANY, Berlin, New Hampshire
CORPORATION, La Tuque, Quebec

General Sales Offices: 150 Causeway Street, Boston 14, Mass.
Dominion Square Building, Montreal, Quebec

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When inquiring check CP 1621 on handy form, pgs. 2-3

MATERIALS

Milorganite cuts fermentation time ten to twenty percent . . .

fertilizer also found to be rich Vitamin B₁₂ source

Research on Milorganite, conducted over the past six years, indicates that this material may become the "coal tar" of the vitamins. It has been found to 1) speed fermentation of a carbohydrate-containing mash, and 2) be one of the richest sources known for Vitamin B₁₂. Milorganite is the high-grade fertilizer made from sewage solids from the activated sludge process.

Early in the work, it was found that addition of small amounts of Milorganite to the mash — made with pure sugars, molasses, or converted grains — reduced fermentation time by ten to twenty percent or more. Plant scale tests confirmed the laboratory work. Lab tests indicate further that higher yields of alcohol are obtained from molasses or converted grain mashes when very small amounts (0.01 to 0.025% by weight of Milorganite based on weight of mash) are added to the mash. A large part of this work is described in US Patent 2,544,273.

The fermentation-accelerating effect is attributed to a fermentation factor which, to date, has not been isolated or identified. It does not appear to be any of the known vitamins nor does it appear to be any material which has ever been shown to have any effect in yeast fermentations.

It seems entirely probable that this factor may be a previously undiscovered vitamin of the B-complex group.

Analytical examination of a number of Milorganite samples indicated that Vitamin B₁₂ was actually present in comparatively large amounts (one to four milligrams per pound). Process development work followed, and already pilot plant operations have prepared Vitamin B₁₂ concentrates (ten to forty milligrams B₁₂ per pound solids) from Milorganite. Processes (patents pending) appear to be both convenient and economical. The possibility of large-scale production of concentrates is being investigated.

A considerable amount of experimentation has been carried out in which both Milorganite and its concentrates have been tested as a source of Vitamin B₁₂ and other growth factors in animal feeds. The results obtained are promising.

(Work has been carried out by Dr. Bernard Wolnak, under the direction of Dr. Carl S. Miner, Jr., at The Miner Laboratories, Dept. CP, 9 S. Clinton, Chicago 6.)

Vinyl acetate polymers, copolymers described in folder

Four-page folder describing vinyl acetate polymers and copolymers in solution and emulsion form illustrates some of the variations in properties possible with the acetate and its copolymers. Folder lists properties of five typical solutions and five typical emulsions.

Table of solution properties includes: solids content, viscosity, film hardness, and intrinsic viscosity. A table of emulsion properties gives solids content, pH, particle size, solvent tolerance, and freeze-thaw stability. Folder also discusses compatibility of the solutions and emulsions with modifiers, the use of plasticizers, and potential applications of the resins. Resin examples described in the folder are intended only as illustrations of how the materials can be adapted to the user's needs.

"Vinyl Acetate Polymers and Copolymers" is issued by National Adhesives Division, National Starch Products, Inc., Dept. CP, 270 Madison Ave., New York 16, N. Y. When inquiring specify CP 1623 on handy form, pages 2 and 3.

**Use in greases, plastics shown
for $\text{Sr}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ offered
in limited quantities . . .**

grease compound resists oxidative breakdown upon exposure to elevated temperatures

Uses: *Lubricants* — a wide variety of strontium greases can be produced from strontium hydrate and various soap stocks. These greases are particularly useful because of certain properties they possess — indicated in "features" section that follows.

Plastics — Coal tar, resin and long chain aliphatic (fatty) acids can be reacted with strontium hydrate to form stabilizers useful for vinyl plastics.

Carbohydrate Purification and Refining — in Europe the hydrate has been used for beet sugar refining. It forms an insoluble disaccharate with sucrose which may be separated and refined. Regeneration of sucrose follows upon addition of CO_2 which forms SrCO_3 . Same type reaction occurs with glycerol and mannitol. For this reason, refining of special carbohydrate-like materials is suggested as use for hydrate.

Glazes and Coatings — various salts of strontium (which can be derived from hydrate) have been used as additives for ceramic glazes.

Features: Lubricants possess:

- 1) Resistance to temperature changes — can be heated and cooled continuously in service without substantial change in grease structure or consistency.
- 2) Resistance to effects of H_2O at ordinary or elevated temperatures.
- 3) Resistance to oxidative breakdown upon exposure to elevated temperatures.
- 4) Good stability of grease structure when subjected to mechanical working.

Description: Manufacturer's strontium hydrate, technical, consists of small white crystals; about 80% will pass through a 20 mesh screen. It is somewhat soluble in water and forms complexes with a number of polar organic compounds.

Typical Analyses

$\text{Sr}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$	95.0-100.0%
SrCO_3	0.5-2.5%
$\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$	1.5-5.0%

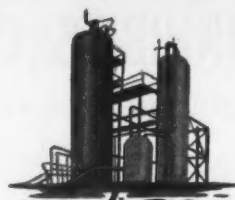
(Pilot plant quantities available from Westvaco Chemical Division, Food Machinery and Chemical Corp., Dept. CP, 405 Lexington Ave., New York 17, N. Y. . . . or for more information check CP 1624 on handy form, pages 2 and 3.)

**Low residual toxicity credited
to nitroparaffin insecticide**

A pest and crop insecticide derived from the nitroparaffins and reported to be below DDT in mammalian toxicity is thoroughly presented in a new 16-page, full-color brochure.

The lower toxicity apparently results because the residue is lost more rapidly under field conditions than most other chlorinated insecticides.

Brochure covers application, description, formulations, physical and chemical properties, toxicity data, and handling and storage in a comprehensive manner. "Dilan" brochure is issued by the Agricultural Division, Commercial Solvents Corporation, Dept. CP, 17 East 42nd Street, New York 17, N. Y. When inquiring specify CP 1625 on handy form, pages 2 and 3.



PETROCHEMICALS by PIPELINE

From the Gulf area to the Ohio . . . for the first time a cross-country natural gas pipeline delivers chemical raw materials from their source to the heart of industrial America.

On stream at Doe Run, Kentucky, 40 miles south of Louisville, a new Mathieson plant now produces basic petrochemicals. A 2000-acre site there affords the opportunity for the development of a new organic chemical center utilizing these ethylene derivatives:

Ethylene Glycol
Diethylene Glycol
Triethylene Glycol

Ethylene Oxide
Ethylene Dichloride
Dichloroethyl Ether

Currently, with market conditions uncertain, a dependable source of supply is especially important. If your production requires any of these chemicals, you may be able to buy to *better advantage* by consulting with us now. Mathieson Chemical Corporation, Baltimore 3, Maryland.

SERVING INDUSTRY, AGRICULTURE AND PUBLIC HEALTH

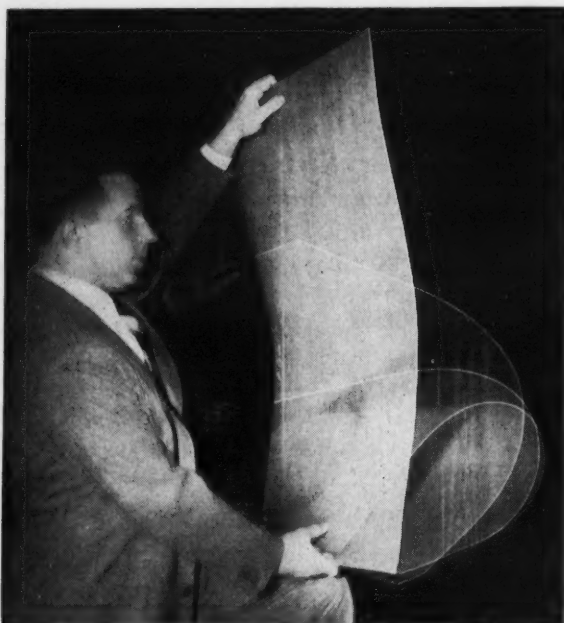
Mathieson
CHEMICALS

When inquiring check CP 1626 on handy form, pgs. 2-3

**Flexibility and toughness
open new applications for
rubber-phenolic varnish . . .**

tougher laminated plastics, stronger and more-moisture-resistant packaging papers foreseen

A rubber-phenolic varnish that permits the manufacture of laminated plastics which have 2 to 3 times the impact strength of those made with conventional varnishes has been recently announced. The varnish has been designated GE 12359 and has been formulated to tackle tough mechanical applications where high impact and



Laminates made with new rubber-phenolic varnish have outstanding flexibility and resistance to impact. Multiple exposure photo shows how rubber-phenolic laminates can be flexed without breaking. Tough mechanical applications are representative of the jobs where these new laminates are expected to make contributions

greater flexibility and toughness are required. Gears, shuttles, tubing, and caster wheels are representative of the jobs where rubber-phenolic laminates are expected to make contributions.

GE 12359 may also enable phenolics to enter the paper-coating field. Heretofore, phenolics have been considered too brittle for this use. Tests indicate that rubber-phenolic varnishes applied to papers for packaging give increased strength and improved resistance to moisture.

(Product of the General Electric Company, Dept. CP, Pittsfield, Mass. . . or for more information check CP 1627 on handy form, pages 2 and 3.)

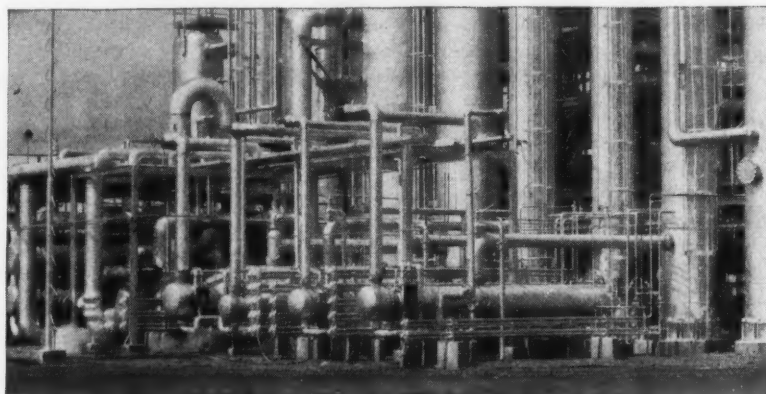
**High abrasion furnace blacks in
natural, synthetic rubbers**

Bulletin 52-1 is an unusually comprehensive treatise on the comparative performance of maker's Continex HAF with other high abrasion furnace blacks in natural and synthetic rubbers. Besides discussing the properties of HAF blacks and showing electron micrographs of particles, the 85-page book deals with HAF black test, rubber mixing and rubber test procedures. Numerous helpful tables and charts are presented.

Synthetic rubbers considered are: standard GR-S X-539,

ARMEEN C INHIBITS CORROSION

EXTENDS CONDENSER LIFE 8½ YEARS



A major oil company has reported outstanding success with Armour's Armeen C in preventing corrosion in casinghead gasoline condensers. Weight loss data on metal test coupons shows a tremendous decrease in the rate of corrosion. Visual examination confirmed the data obtained on coupon tests.

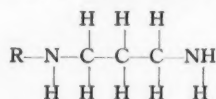
These casinghead gasoline condensers operate at 450 lbs. psi. Due to the high

rate of corrosion they were replaced approximately every 18 months at a cost of about \$10,000.00. Since treatment with Armeen C, the rate of corrosion has decreased to such an extent that this company's corrosion engineers now estimate that these condensers will last for 10 years.

If you would like to test Armeen C, just check the coupon and a sample will be mailed to you without obligation.

THREE NEW DIAMINES AVAILABLE FOR PRODUCT RESEARCH

Following the introduction several months ago of Duomeen T, the Armour Chemical Division now has available a more complete line of these interesting diamines. These compounds have the following chemical structure wherein the normal alkyl group "R" varies in chain length from C₁₂ to C₁₈. The C₁₆ and C₁₈ chains can be produced with a fully saturated chain or degrees of unsaturation.



These diamines are soluble in a wide variety of organic solvents including alcohols, ethers, ketones, chlorinated solvents, and aliphatic and aromatic hydrocarbons. They are not soluble in water but certain members show a slight dispersibility in water at higher temperatures.

Because of their double amine groups, these compounds are strong organic bases and exhibit greater cationic properties than their corresponding primary amines.

The mono- and di-salts of these diamines with both organic and inorganic salts are formed quite readily. Salts of the inorganic acids and the lower organic acids are soluble or dispersible in water.

Indicated applications are in the fields of corrosion inhibition, chemical intermediates, as bactericidal agents, in asphalt bonding, and as pigment grinding and dispersant aids.

Samples of these new materials are available now. Check the coupon for samples of any or all of the following:

- Duomeen C—from coco fatty acids
- Duomeen 12—from lauric acid
- Duomeen S—from soya fatty acids
- Duomeen T—from tallow fatty acids

TWO QUATERNARIES COMBINED TO SOLVE SLIME PROBLEM

Recently a producer using the water flooding method of secondary oil recovery encountered a new problem—a peculiar slime formation on the waters. Previously this producer had solved his two major problems—corrosion and bacteria control—by the use of Armour's Arquad 2C. However, the new slime could not be destroyed by Arquad 2C alone.

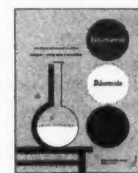
The problem was solved by combining two quaternaries—Arquad 2C and Arquad S. Armour chemists have long believed that Arquad 2C is the best corrosion inhibitor in brine and acid waters, and that Arquad S is the best all-purpose bactericide. By combining these two products, the added killing power of Arquad S solved the slime problem for this producer without reducing the efficiency of corrosion inhibition. Other field tests have shown the effectiveness of Arquad S-2C in controlling sulfate-producing bacteria.

If you have a slime problem, test samples of Arquad S-2C are available.



ETHOMEENS—ETHOMIDS—ETHOFATS

The Etho-chemicals are polyethylene oxide derivatives of fatty amines, fatty amides and fatty acids. These cationic and non-ionic chemicals have proven themselves particularly valuable as wetting agents, detergents, emulsifiers (and emulsion breakers), and as chemical intermediates. For your free copy of the booklet covering these chemicals, check the coupon.



THE CHEMISTRY OF FATTY AMINES

This twenty-page booklet gives detailed information on the fatty amines. It includes sections on types of fatty amines and quaternary ammonium salts, cationic surface activity, solubility, handling and synthesis, as well as on chemical coordination and substitution reactions. Send the coupon for copy of this booklet.



ARMOUR CHEMICAL DIVISION

ARMOUR AND COMPANY • 1355 WEST 31ST STREET • CHICAGO 9, ILLINOIS

COMMERCIALLY PURE LAURIC ACID OFFERS MANY POSSIBILITIES FOR PRODUCT DEVELOPMENT

Time was when a manufacturer had to take a mixture of nine different coconut oil fatty acids in order to get one he really wanted. Of course, this seriously handicapped the development of new and improved products, since each acid has its own specific chemical and physical properties which make it valuable for certain uses but unsatisfactory for others. The availability of commercial pure fatty acids such as Armour's Neo-Fat 11 (lauric acid) offers the research chemist a real opportunity to formulate new quality products.

Tests have proved that the characteristic properties of 12 carbon length fatty acids give outstanding superiority in many applications. Recent literature has many references to the various derivatives of lauric acid in detergents, dyes, textiles, wetting agents and many other uses. The sodium salt of sulphated lauryl alcohol is one of the best detergents of the so-called "soapless soap" type. Another derivative, lauryl rhodinate (thiocyanate) is used as an insecticide for aphids, red spider, thrips, etc., and is more effective than derivatives of higher or lower carbon chain length acids.

NON-YELLOWING HIGH BAKE ENAMELS

Many appliances owe their lasting whiteness to Neo-Fat 11. Because it has less than 1% unsaturated fatty acid content, high bake enamels produced with Neo-Fat 11 in resin formulations have a final film that is permanently tough and flexible. Such enamels will not take on a dingy, yellowed appearance. Technical Bulletin A-2 gives details on this use for Neo-Fat 11. Send the coupon for your copy.

SOAP AND SHAMPOOS

The recent gain in popularity of soap shampoos has been traced in part to the availability of fractionally distilled coconut oil fatty acids—such as Neo-Fat 11—from which the irritating short carbon chain fatty acids have been removed. While they do not have the shortcomings of the synthetics, mainly severe scalp drying effects, many lauric acid shampoo formulations are somewhat irritating to

the skin, because they do include these short chain fatty acids. Due to its high purity, Neo-Fat 11 gives the desired quick and copious foam without the irritating side effects.

Since the sodium and potassium soaps of pure lauric acid greatly increase the



solubility of soaps of the higher fatty acids in salt or hard water, Neo-Fat 11 is recommended for use in shampoos and soaps that will be used in hard or salt water areas.

Salts of sulfuric acid ester of dilaurin are particularly desirable in making both bar and cake soap.

OTHER USES FOR LAURIC ACID

Because lauric acid has a lower molecular weight, its metallic salts carry a higher metallic content than salts of either palmitic or stearic acid. These salts have desirable properties in paints, coating materials, ceramics and many other fields where this characteristic is valuable.

The organic esters also find varied applications. The mono-, di-, and triglycerides may be used in pharmaceutical preparations, textile, leather, brushless shaving creams and other uses. Because lauric acid is a saturated compound with little tendency towards oxidation, it can produce

a low melting point material which is resistant to rancidity.

SPECIFICATIONS	MIN.	MAX.
Iodine No.	—	2.0
Acid Value	276	282
Titer	36°C	42°C
Color, Lovibond— 5 1/4"	—	1.0 R—10 Y
Color (Optical)	—	24 R 303 Y
Density x 1000	—	0.5%
Unsaponifiable	—	0.2%
Moisture	—	characteristic
Odor	—	characteristic
Appearance	—	characteristic

AVERAGE COMPOSITION	
Lauric acid	93%
Myristic acid	6%
Unsaturated acids	1%
Capric acid	trace

Check and send the coupon for research samples of Neo-Fat 11.

NEW PRIMARY AMIDE AVAILABLE IN COMMERCIAL QUANTITIES

The Armour Chemical Division has just completed its first commercial production of Armid O—a new high molecular weight amide derived from pure crystallized oleic acid. Physically this new material has better plasticity, compatibility and improved solubility over other products in the Armid group. Armid O has a bland odor, a pale lemon color, and is soluble in ketones, esters, alcohols, turpentine, mineral spirits, fats and fatty acids.

With these properties and because Armid O solubilizes more of certain dyes than castor oil, it is suggested for use to add both increased dye solubility and anti-stick qualities to carbon paper. In addition Armid O is useful as an anti-block agent for synthetic resin and plastic films. It can be used to reduce tack in lacquers and can be applied for use in label lacquers. This new fatty amide possesses unusual mutual solvent powers for waxes and plastic materials.

SPECIFICATIONS	MIN.	MAX.
Iodine Value	85	90
Free Fatty Acid	—	3.5%
Color (Lovibond 1 1/4")	—	3 1/2 R
Melting Point	68°C	

Your research can begin by requesting a sample of Armid O. Just check the coupon—no cost or obligation, of course.

MATERIALS

"cold rubber" LTP GR-S X-478, GR-1-17, Hycar OR-25-EP, neoprene type GN, and neoprene type W. Issued by the Witco Chemical Company, Dept. CP, 295 Madison Avenue, New York 17, N. Y. When inquiring specify CP 1629 on handy form, pages 2 and 3.

Low comparative cost is highlighted in vinyl plasticizer . . .

imparts low brittle point values and stabilizes vinyl resins to heat and light

Uses: Plasticizer for vinyl compounds. Recommended for application in upholstery sheeting, fabric coatings, light-weight film, garden hose, electrical jacketing, dispersion compounds for casting and slush molding, injection molding, and rigid or semi-rigid vinyl products.

Features: Is light and clear in color, has low volatility and viscosity, imparts low brittle point values, and has good plasticizing efficiency. Maker reports that it is not only comparatively inexpensive, but also increases the stability of vinyl resins under heat and light.

Description: Monoplex S-71 finds its greatest use in stocks in which it comprises up to 50% of the total plasticizer concentration. It is particularly effective in blends with polymeric plasticizers, where it improves performance at low temperatures with little compromise in plasticizer permanence. Window exposure, fadeometer, and normal aging tests with Monoplex S-71 indicate good compatibility characteristics over long periods in blends with virtually all primary plasticizers.

Physical properties of S-71 are tabulated below:

Appearance	clear
Color (vannish scale)	1—
Acid number (mgm KOH/gm)	0.1
Viscosity at 25°C, cp	14-22
Flash point, °F	395
Refractive index at 25°C	1.4518
Specific gravity at 25°C	0.901

Of equal importance to its ability to lower brittle temperatures is the stabilizing influence of S-71. Stocks containing it are highly resistant to deterioration by light and heat. Its stabilizing effect is particularly important in vinyl film processing, where high initial temperatures often cause severe discoloration.

(Product of the Rohm & Haas Company, Dept. CP, Washington Square, Philadelphia, Pa. . . or for more information check CP 1630 on handy form, pages 2 and 3.)

Highlights applications for soaps of rosin acids

The wide variety of applications for maker's Dresinate (series of sodium and potassium salts of rosin and resins) is highlighted in a 12-page, 2-color bulletin. Emulsifying in soluble oils, alkaline cleaning compounds, textile and pine oil, tar-acid, and soaps and detergents are cited. Various grades of the product also serve as dispersants, foaming and flotation agents, viscosity control agents, sizing compounds, and other uses where uniform soaps of rosin acids are indicated.

A description and the properties of a dry, liquid, and paste grade are set forth. "Dresinate" bulletin is issued by the Hercules Powder Company, Dept. CP, Wilmington, Del. . . or for more information check CP 1631 on handy form, pages 2 and 3.

Mail this coupon

Check the boxes and send 20 to receive and address—no cost or obligation.

Literature: ☐ Etho-chemicals booklet ☐ Chemistry of Fatty Amines
☐ Tech. Bulletin No. A-2

Samples: ☐ Duomeen C ☐ Duomeen 12 ☐ Duomeen S ☐ Duomeen T
☐ Armeen C ☐ Arquad S-2C ☐ Armid O ☐ Neo-Fat 11

Name..... Title.....

Firm.....

Address.....

City..... Zone..... State.....

When inquiring check CP 1628 on handy form, pgs. 2-3

FATTY ACIDS
LONG-CHAIN FATTY ACID DERIVATIVES
INDUSTRIAL OILS

Shipped in drums, tank trucks
or tank cars

PICCO

Solvents and Solvent Oils

meet your varied and exacting needs

Shown above are only a few of the PICCO Solvents and Solvent Oils. This complete line includes aromatic petroleum naphthas, coal tar naphthas, various heavy naphthas, solvent and heavy oils. Write for bulletin giving complete details.

PENNSYLVANIA INDUSTRIAL CHEMICAL CORP.
CLAIRTON, PENNSYLVANIA

Plants at: Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.



When inquiring check CP 1632 on handy form, pgs. 2-3

LITHIUM...

ONCE
a laboratory curiosity
... NOW
a new industry!

NO longer in the laboratory category of scientific curiosity, Lithium has achieved the status of a new industry through the medium of applied research. Lithium's commercial significance embraces field after field. The amazing increase in usage of Lithium and Lithium chemicals has been possible largely through the extensive development work of Metalloy Corporation, basic to this fast-growing industry.

LOOK TO METALLOY—Supplier of 7 Forms of Lithium Metal—17 Lithium Compounds

Supplied experimentally or commercially . . . Metal—Ingot-Cup-Shot-Rod-Wire-Ribbon-Cartridge

COMPOUNDS

Aluminate - Amide - Borate - Bromide - Carbonate - Chloride - Cobaltite - Fluoride - Hydride - Hydroxide - Manganite - Nitrate - Nitride - Silicate - Titanate - Zirconate - Zirconium Silicate

IF IT'S LITHIUM—IT'S METALLOY!
Write Dept. CP for Data Sheets

LITHIUM CORPORATION of America, Inc.
METALLOY CORP., Division
Rond Tower
Minneapolis 2, Minnesota

When inquiring check CP 1633 on handy form, pgs. 2-3



disperse faster and more completely with **DARVAN**

DARVAN* dispersing agents keep finely divided solids or liquids permanently dispersed in water. Emulsions will not separate. Dispersions will not settle. Precipitates will not form. Very small amounts of DARVAN are even effective in breaking down flocs and agglomerations to their ultimate particle size.

Active ingredients in emulsions are more effective because of the greatly increased surface area of the smaller sized suspended particle.

DARVAN makes pastes smoother, more fluid. Concentrated pastes with higher solids are obtainable. DARVAN emulsifies oils where water is the external phase.

Soluble in water, with a neutral pH, DARVAN is stable toward mild acids and alkalis.

DARVAN is constantly finding new applications in many products of the Chemical Industry. It may solve your particular problem. Write today for detailed information.

*DARVANS are dispersing agents, not wetting agents. DARVANS do not appreciably affect surface tension.

R. T. VANDERBILT CO.

SPECIALTIES DEPARTMENT

230 PARK AVENUE, NEW YORK 17, N. Y.

☐ Please send information and sample of DARVAN.

NAME _____

POSITION _____

(Please attach to, or write on, your company letterhead)

When inquiring check CP 1634 on handy form, pgs. 2-3

MATERIALS

**Use just one vehicle for all
coating formulations,
flats to glossies . . .**

pure alkyd free of rosin and derivatives, lime, soaps, and dissolved in low-odor thinner

Uses: Pure alkyd vehicle for formulating flat-finish wall coatings. Can also be used for formulating semi-gloss finishes. Even high-gloss finishes can be prepared when the vehicle is blended with other alkyds.

Suitable vehicle for sealers and undercoats, especially those designed for use under semi-gloss finish coats. Interior and exterior applications are possible.

Features: Free of rosin, rosin derivatives, lime, and soaps. Maker intends vehicle to meet *all* coating formulation requirements — flats to glossies. Reported to combine the economy of limed vehicles with the speed of drying found in emulsion paints.

Description: Wallkyd is a pure flat alkyd dissolved in a low-odor thinner. Formulated coatings can be applied readily by roller or brushing. Coat after coat can be applied without danger of the final coat cracking, peeling, or stripping off. Color retention (on either sealed or unsealed surfaces) is good; surfaces wash easily.

Formulated flat wall finishes can be packaged thinned and ready for application without danger of settling in storage. Being compatible with other pure and modified alkyds and with pigments ground in oil, the vehicle can also be utilized in color systems in which paints are stored as white bases — to be tinted at time of use.

(Wallkyd vehicle is a product of Reichhold Chemicals, Inc., Dept. CP, 630 Fifth Avenue, New York 20, N. Y. . . . or for more information check CP 1635 on handy form, pages 2 and 3.)

Outlines features and use of nylon bearings

Two-color bulletin outlines principles and application of nylon bearings for rotation and reciprocation. Sectional illustration presents operating features of bearing to be utilized at 250°F recommended temperature limit. Bearings are sleeve or flange type with tensile strength of 10,900 psi. Advantages of nylon bearings relate to dry operation or limited lubrication requirements. Chemically inert properties of nylon permit contact with ordinary industrial chemicals.

Four-page bulletin "Nylined Bearings" and data sheet are issued by Thomson Industries, Inc., Dept. CP, Engineering Department, Manhasset, N. Y. When inquiring specify CP 1636 on handy form, pages 2 and 3.

Mirror-bright plate obtained at 100 percent efficiency with this brightener . . .

flexible operation allows current density of 10 to 60 amp/sq ft at temps from 140 to 160°F

Mirror-bright copper plate is the product of an electroprocess for rapid deposition. Copper plating done in this way is reported to be as bright as bright nickel — and this condition prevails throughout the thickness of the plate. An ideal coating for zinc prior to bright nickel or brass plating, this copper plate can also be readily flowed by buffing to hide scratches or polishing marks on poorly finished steel.

The Ronal high-speed bright copper plating process uses

CHEMICAL PROCESSING

MATERIALS

a brightening additive known as Lea Copper Glo. Sodium or potassium cyanide baths may be used at a minimum pH of 12.5. Lea Copper Glo P-502 is usually added up to 2 percent (by volume) and Lea Copper Glo S-100 up to 1 percent (also by volume). Amount of additive is not critical, however, and nearly twice the recommended amount does not produce any serious effect. In the usual temperature range of 140 to 160°F, with cathode rod agitation, current densities of 10 to 60 amp/sq ft are employed. In fact, current is ordinarily run up to the point where gassing starts, then backed off so as not to burn the plate.

Any type of anodes — electrolytic, balled, cast, sheet — with about twice the area of the cathode may be used. Nickel and nickel silver anode hooks must be avoided; iron, steel, or copper are preferred. Steel tanks and heating coils must also be used to avoid lead.

(A detailed report on this process is available from the manufacturer, Lea Manufacturing Company, Dept. CP, Waterbury, Conn. . . or for more information check CP 1637 on handy form, pages 2 and 3.)

What's a silicone? Booklet answers with photos, text in 32 pages

Description of various silicones and their uses are graphically illustrated and indexed in manufacturer's 32-page booklet.

Thumb-nail index provides quick access to information concerning applications and beneficial properties of silicones in polishes, water repellents, fluids, release agents, lubricants, defoamers, protective coatings, electrical insulation, and manufacturer's brand of silicone rubber.

"What's a Silicone?" is issued by Dow Corning Corporation, Dept. CP, Midland, Mich. When inquiring specify CP 1638 on handy form, pages 2 and 3.

See future iron supply from taconite . . .

pelletizing technique promises new source after present high-grade ore is expended

Taconite, long considered a potential source of iron, has moved one step closer to being a commercial possibility.

The hard stone (24 to 30% iron) was discussed as the subject of an improved technique of pelletizing at the annual meeting of the American Institute of Mining and Metallurgical Engineers.

John R. Green, manager of the steel division of Minneapolis-Honeywell's Brown Instruments Division, said the process is significant because the nation's deposits of high-grade ore are expected to run out in five to ten years. Known deposits of taconite run into "billions of tons."

Improved technique consists chiefly of finer temperature control and more exactness in maintaining fuel and air ratio and distribution in the pelletizing operation. Taconite fines and dust, once fused into pellets, are easily transported and are big enough to stay put in the blast furnace. Green surmised that this application of instrumentation will facilitate some long-range production targets in taconite iron. Some industry circles estimate production at 15-million tons per year by 1956, he said.

(Information received from Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Windrim Aves., Philadelphia 44, Pa.)

MISCELLANEOUS	CHEMICAL PROCESSING	RUBBER CHEMICALS	PAINT, VARNISH AND LACQUER	PLASTICS	PHARMACEUTICALS	DYES	INDUSTRIES SERVED
Textiles	✓	✓	✓	✓	✓	✓	Acetic Acid
Perfumes and flavors	✓	✓	✓	✓	✓	✓	Acetic Anhydride
	✓	✓	✓	✓	✓	✓	n-Butyric Acid
	✓	✓	✓	✓	✓	✓	2-Ethylbutyl Alcohol
	✓	✓	✓	✓	✓	✓	2-Ethylhexyl Alcohol
Hydraulic fluids	✓	✓	✓	✓	✓	✓	Isobutyl Alcohol
Denaturant	✓	✓	✓	✓	✓	✓	Acetaldehyde
	✓	✓	✓	✓	✓	✓	n-Butyraldehyde
Denaturant	✓	✓	✓	✓	✓	✓	Crotonaldehyde
	✓	✓	✓	✓	✓	✓	Isobutyraldehyde
	✓	✓	✓	✓	✓	✓	Diethyl Maleate
Denaturant	✓	✓	✓	✓	✓	✓	Dibutyl Phthalate
	✓	✓	✓	✓	✓	✓	Diethyl Phthalate
	✓	✓	✓	✓	✓	✓	Di-(2-Ethylbutyl) Phthalate
	✓	✓	✓	✓	✓	✓	Di-(2-Ethylhexyl) Phthalate
Insecticides	✓	✓	✓	✓	✓	✓	Di-(Methoxyethyl) Phthalate
Explosives	✓	✓	✓	✓	✓	✓	Dimethyl Phthalate
Perfume fixative	✓	✓	✓	✓	✓	✓	Triacetin
	✓	✓	✓	✓	✓	✓	Tributyrin
Adhesives and cements	✓	✓	✓	✓	✓	✓	Acetone
	✓	✓	✓	✓	✓	✓	Ethyl Acetate
	✓	✓	✓	✓	✓	✓	Isobutyl Acetate
Insecticides	✓	✓	✓	✓	✓	✓	Isopropyl Acetate
	✓	✓	✓	✓	✓	✓	Triethyl Phosphate
	✓	✓	✓	✓	✓	✓	2,5-Diethoxy Aniline
	✓	✓	✓	✓	✓	✓	2,5-Dimethoxy Aniline
	✓	✓	✓	✓	✓	✓	Phenyl Diethanolamine
	✓	✓	✓	✓	✓	✓	Phenyl Ethyl Ethanolamine
	✓	✓	✓	✓	✓	✓	m-Tolyl Diethanolamine
	✓	✓	✓	✓	✓	✓	o-Tolyl Propanolamine
Antioxidant	✓	✓	✓	✓	✓	✓	m-Aminophenol
Antioxidant	✓	✓	✓	✓	✓	✓	p-Aminophenol
	✓	✓	✓	✓	✓	✓	Tenamene® 1
Polymerization inhibitor	✓	✓	✓	✓	✓	✓	2,5-Di-tert-Butyl Hydroquinone
Antioxidant	✓	✓	✓	✓	✓	✓	Quinizarin
Ultraviolet inhibitor	✓	✓	✓	✓	✓	✓	Tecquinol®
Perfume	✓	✓	✓	✓	✓	✓	Toluhydroquinone
	✓	✓	✓	✓	✓	✓	Hydroquinone Diethyl Ether
Antioxidant	✓	✓	✓	✓	✓	✓	Hydroquinone Dimethyl Ether
	✓	✓	✓	✓	✓	✓	Hydroquinone Di-n-Butyl Ether
	✓	✓	✓	✓	✓	✓	Hydroquinone Mono Methyl Ether
Polymerization regulator	✓	✓	✓	✓	✓	✓	Acetanilide
Dye developer	✓	✓	✓	✓	✓	✓	p-Benzoquinone
Oxidizing agent	✓	✓	✓	✓	✓	✓	Beta Oxy Naphthoic Acid
Antioxidant	✓	✓	✓	✓	✓	✓	2,5-Di-tert-Butyl Quinone
Synthetic fibers	✓	✓	✓	✓	✓	✓	Tenamene® 2
Strip coatings	✓	✓	✓	✓	✓	✓	Cellulose Acetate
	✓	✓	✓	✓	✓	✓	Cellulose Acetate Butyrate
Grinding rouge	✓	✓	✓	✓	✓	✓	Oxidized Cellulose
Fertilizer and feed supplement	✓	✓	✓	✓	✓	✓	Iron Oxide
	✓	✓	✓	✓	✓	✓	Tecmangam® 70%

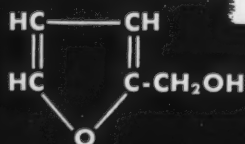
Specifications, properties and other typical uses of these chemicals are contained in the Eastman Industrial Chemicals catalog. Write for your copy.

EASTMAN INDUSTRIAL CHEMICALS

SALES REPRESENTATIVES: New York—10 E. 40th St.; Cleveland—Terminal Tower Bldg.; Chicago—360 N. Michigan Ave.; Houston—412 Main St. **West Coast:** Wilson Meyer Co., San Francisco—333 Montgomery St.; Los Angeles—4800 District Blvd.; Portland—520 S. W. Sixth Ave.; Seattle—821 Second Ave.

TENNESSEE EASTMAN COMPANY Division of Eastman Kodak Company **KINGSPORT, TENNESSEE**

When inquiring check CP 1639 on handy form, pgs. 2-3



WHAT IS Furfuryl Alcohol (FA)?

HERE'S WHAT IT IS: an amber colored primary alcohol containing a furan ring and having the following properties:

Specific gravity, 20/20°C.	1.134
Refractive index, n 20/D	1.484
Flash point (open cup), °C.	75.0
Cloud point, °C.	21.0

what will it do?

It will act as:

- 1. A RESIN INGREDIENT.** Resins made from FA are chemically resistant to acids and to alkalis as well as to solvents. FA also reacts with phenolic compounds, formaldehyde, melamine, and urea to form resins with various modified properties.
- 2. A WETTING AGENT.** In the manufacture of grinding wheels FA is a wetting plus a solvent for the phenolic resin binder and reacts with it in the curing cycle, resulting in a tough bond with minimum production of volatiles.
- 3. A SOLVENT.** FA is an excellent solvent for nitrocellulose and many synthetic and natural resins; it is miscible with water, chloroform, coal tar solvents, and non-paraffinic hydrocarbon solvents.
- 4. A DISPERSANT IN TEXTILE PRINTING.** Difficultly soluble dyes such as leuco vat ester salts are dispersed with FA and the storage stability of these solutions is improved.

Write for a copy of Technical Bulletin 83-B

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CHEMICALS DEPT.

When inquiring check CP 1640 on handy form, pgs. 2-3

MATERIALS

See cation exchanger for greatly simplifying elution methods . . .

also solution to oxidations or reductions without additives

Uses: Phosphonic cation exchange resin. Applicable to general water-treating applications. Due to the complexing nature of the phosphonic group, elution techniques in separating rare earth ions may be simplified.

In addition, the phosphonic group can undergo reduction to phosphorous acid, offering a possible means for carrying out oxidation or reduction in solution without the introduction of contaminating additives.

Features: In tests, the resin has been found to be highly resistant to deterioration. For example: It has been exposed to boiling HCl (6N) @ 100°C and NaOH (4N) at 95°C for periods up to 48 hr without decline in exchange capacity. Oxidizing agents such as H₂O₂, Cl₂, and HNO₃ seem to produce no harmful effects. It can be dried and then immersed in water without decrepitation due to osmotic shock.

Description: Duolite C-60 attributes its exchange properties to the presence of phosphoric acid groups. It is offered in bead form (approx. 20-60 mesh), varies in color from white to light yellow, and has an average absolute density of 1.28-1.30 gm/cc. It is in the hydrogen form.

Active group is -P(O)(OH)₂. Total capacity to NaOH is 6.0 meq/gm (dry) and 2.5 meq/ml (wet tamped). Regenerant dosage is 2.5 volumes of 2N acid per volume of resin.

The phosphonic acid group is intermediate in acid strength between the strongly acid sulfonic and the weakly acid carboxylic groups. Accordingly, its capacity depends on the pH of the solution undergoing the exchange reaction.

Since the phosphonic acid group does not split neutral salts as effectively as the more highly ionized sulfonic acid groups, Duolite C-60 in the hydrogen cycle will give only a partial exchange with salts in solution at pH below 7.

For example, in an exhaustion run with sodium chloride, the capacity obtained was 0.65 equivalents per liter. This property allows Duolite C-60 to offer a maximum of exchange with a minimum acid requirement.

(Product of the Chemical Process Company, Dept. CP, 901 Spring Street, Redwood City, Calif. . . . or for more information check CP 1641 on handy form, pages 2 and 3.)

"101" CORROSION PROBLEMS



Ucilon* Protective Coating Systems maintain equipment against attack of many strong chemicals and corrosives

Unlike ordinary paints, Ucilon Coatings give enduring protection against a "hundred and one" strong chemicals or corrosives. Used in systems of coatings, the various Ucilon Coatings form a film highly resistant to strong acids, alkalis, alcohols, salt solutions, moisture, oils and other paint-destroying agents.

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Send today for the CONDENSED Ucilon BULLETIN that lists the 101 common corrosion problems and the Ucilon Coating Systems that offer you long lasting protection against each at lowest cost.

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UCILON Protective Coatings

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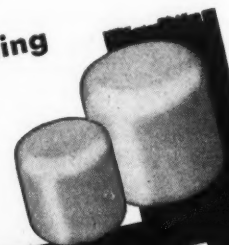
UNITED CHROMIUM, INCORPORATED 100 East 42nd Street, New York 17, N. Y.
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In Canada: United Chromium Limited, Toronto, Ont.

When inquiring check CP 1642 on handy form, pgs. 2-3

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- made of "ultra-high" fired ceramic
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- extra high specific gravity for faster action
- extremely hard for positive attrition
- long wearing for minimum contamination
- non-porous for easy cleaning
- for use in both wet and dry grinding
- 50% faster grinding than conventional media

Write, today, for bulletin and samples!

302C



When inquiring check CP 1643 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Acts differently than conventional dye stripping agents...

inactivates dislodged dye in bath by aggregation, or by competing for affinity of loose dye

Uses: Stripping aid for vat, sulfur, and direct dyeings or prints on cotton and rayon materials.

Features: Meets the requirements for a material which can inactivate dislodged dye in the stripping bath either by aggregation or by acting as a competing substance for the affinity of the loose dye. Its action is thus distinctly different from conventional stripping agents.

Description: Peregal ST functions as a stripping and color lightening aid only in the presence of soluble dye in the bath. With vat and sulfur colors it is therefore essential to solubilize by the use of hydrosulfite and caustic — using these ingredients in conjunction with Peregal ST in the stripping bath. Solubilizing sulfur colors by the use of sodium sulfide and soda ash is not recommended for this application.

As a very weakly cation-active material, Peregal ST forms very stable-cation-anion complexes with dyestuffs containing sulfo groups as well as those which contain a phenolate grouping in aqueous solution, i.e., direct, vat, or sulfur colors. The bond of attraction between dyestuffs of these groups and ST is so strong that the latter may be considered, in a sense, a liquid fiber for which the dyestuff has greater affinity than for cotton.

In stripping operations, once the cellulose-dyestuff bond is broken, the dislodged dye is preferentially and permanently bound to Peregal ST. Even after prolonged stripping treatment, the bond remains intact. Obviously, this restraining action which accounts for the high stripping efficiency rules out ST for use as a levelling agent in the vat dye bath. On the other hand, by virtue of its stripping action, it is an excellent aid in levelling finished vat or sulfur dyeings which are uneven.

Chemically, Peregal ST is polyvinyl pyrrolidone. It is supplied as a water soluble, slightly viscous, tan-colored liquid that is stable to hard water, acid, and alkalis in concentrations usually encountered in the textile trade.

(Product of Antara Chemicals Division of General Dyestuff Corporation, Dept. CP, 435 Hudson Street, New York 14, N. Y. . . or for more information check CP 1644 on handy form, pages 2 and 3.)

Modification of wool with peroxygen compounds

Peroxygen modification of wool as an aid to physical and chemical processing is discussed in a new 7-page bulletin. It gives both an overall picture and a detailed explanation of the actual and potential uses of peroxygen compounds in four types of wool processing. A special treatment called "carroting" imparts felting properties to wool fibers.

High grade wool forms felt without such treatment, but the process is necessary for improving medium grades and re-used wool having poor felting properties, and is used in all commercial manufacture of hat felt.

Hydrogen peroxide can replace mercury in the extremely hazardous process of carroting where previously a toxic mixture of nitric acid and mercury was used. Bul No. 35 is issued by Buffalo Electro-Chemical Company, Inc., Dept. CP, Station B, Buffalo 7, N. Y. When inquiring specify CP 1645 on handy form, pages 2 and 3.

THIS MANUAL Can Help You Plan New Products and Improve Existing Products!

It covers the complete story of one of the most effective wetting and emulsifying agents available today . . .

NEUTRONYX 600

. . . an aromatic polyglycol ether with a wide range of existing and potential uses where a non-ionic detergent, wetting, emulsifying and dispersing agent can be used.

NEUTRONYX 600

Non-ionic Detergent
Wetting and Emulsifying Agent

ONYX OIL AND CHEMICAL
INDUSTRIAL DIVISION
WARREN AND MORRIS STREETS
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NEUTRONYX 600

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In Canada: Onyx Oil & Chemical Co., Ltd., Montreal, Toronto, St. Johns, Que. For Export: Onyx International, Jersey City 2, N. J.
West Coast Representative: E. S. Browning Co., San Francisco, Los Angeles

When inquiring check CP 1646 on handy form, pgs. 2-3

when your processing
problem is on this list



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TOLUIDINES	NAPHTHALENES
ANISIDINES	STILBENES
ANTHRAQUINONES	PHENOLS
PYRAZOLONES	BENZIDINES
XYLENES	PHENYL HYDRAZINES

Antara Intermediates—for many years “captive” products for use in General Dyestuffs—now available to industry. If you need chlorinated, nitrated, sulfonated, aminated, fused or isolated aromatics for drugs, dyes, plastics, rubber, synthetic fibers, insecticides, etc.—it will pay you to get in touch with our technical staff.

Your inquiry on your business letterhead will bring a prompt opinion on whether an Antara Intermediate can be provided to fit into your product or process.

INTERMEDIATES DEPARTMENT

ANTARA. CHEMICALS

DIVISION OF

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET • NEW YORK 14, NEW YORK



When inquiring check CP 1647 on handy form, pgs. 2-3

MATERIALS

**PVA now being offered as
colloidal, water sol'n . . .**

films have unusually high water resistance and have glass-like clearness

Uses: Suggested for applications where polyvinyl acetate emulsions are now being used and where the latter have proved unsatisfactory. Also recommended as a substitute for solvent solutions of polyvinyl acetate.

Features: Most outstanding characteristic of the polyvinyl acetate solution is the high water resistance of air dried films. The films may, however, be re-dissolved with mild alkalis such as ammonia and soda ash. Films are reported to have glass-like clearness.

Description: Darex Polymer Y is a colloidal, water solution of a modified polyvinyl acetate. It is supplied in neutral solution as a translucent, semi-viscous, fluid miscible with water in all proportions. No settling takes place even upon great dilution. Properties are not adversely affected by freezing and thawing. Data on solution and film properties are presented below:

SOLUTION PROPERTIES

Total solids, %	38-40
Viscosity, cp (Brookfield)	100-300
Color	cream
Odor	slight
Free monomer, %	<0.2
pH	7-8
Pounds per gallon (approx)	8.7

FILM PROPERTIES

Molecular weight (approx)	14,000
Density	1.19
Odor	none
Color	water white
Clarity	glass clear
Gloss	high
Ultraviolet light stability	excellent
Water resistance	excellent

Chemical plasticizers which are ordinarily used with polyvinyl acetate emulsions may be used to plasticize Polymer Y. Ten percent of a plasticizer is sufficient to give Polymer Y an unusually flexible, non-sticky film.

(Product of the Dewey and Almy Chemical Company, Dept. CP, Cambridge 40, Mass. . . or for more information check CP 1648 on handy form, pages 2 and 3.)

Metallic-base lubricant receives testimonial

Two bulletins offer abstracts and case histories confirming value of molybdenum lubricant. Available in volatile and non-volatile forms, lubricant proves effective at pressures up to and over 200,000 psi. Four-page bulletins stress the utility of liquified molybdenum at temperatures as high as 800 to 1200°F for prolonged periods and up to 2250°F for shorter periods. Molybdenum disulfide finds application in reducing wear and corrosion on bearing surfaces, diminishing friction between sliding surfaces, as a thread compound to prevent seizures.

Bulletin 21-G reviews physical characteristics of the molybdenum-base lubricants, lists bibliography, and uses relative to automotive, ceramic and glass, aircraft, and forging industries. Petroleum base forms are reviewed in addition to volatile and non-volatile series. Bul 21-F and Bul 21-G are issued by The Lockrey Company, Dept. CP, Southampton, N. Y. When inquiring specify CP 1649 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

NEW THREAD COMPOUND

Licks Stud Freezing
Even at 1800° F.!

SAFE for all high temperature applications!
SAFE for Stainless and Alloy Steels, too, will not pit or corrode!
IDEAL as a cutting compound to prevent galling of Stainless Steel!

Make a convincing test of Fel-Pro C-5 "Hi-Temp" Thread Compound at our expense. Then you can be sure that C-5 will do everything we say it will do. See how it cuts heater dismantling time—how it cuts costly stud breakage and eliminates pitting. Then you will standardize on C-5 just as have some of the nation's largest refineries, utilities and process industries. Write for FREE Sample and data sheet TODAY!



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Send for YOURS
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**FEL-PRO
C-5
"HI-TEMP"
THREAD COMPOUND**

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1515 CARROLL AVENUE • CHICAGO 7, ILLINOIS

When inquiring check CP 1650 on handy form, pgs. 2-3

FILTER MEDIA

for Chemical Processing

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Quality filtering pads furnished in a range of grades varying in porosity and filtering characteristics. Sizes and shapes for all needs.

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The FILTER PAPER CO.

2432 S. Michigan Ave. Chicago 16, Ill.

When inquiring check CP 1651 on handy form, pgs. 2-3

APRIL, 1952

MATERIALS

**Insecticide gives high kill
at low concentrations . . .**

synergized pyrethrum concentrate has agreeable odor, light color

Uses: For formulation of non-toxic fly sprays, roach sprays, mill sprays, industrial sprays, food packing and bottling plant sprays, and for knock-down in residual type sprays.

Features: A synergized pyrethrum concentrate, it possesses advantages of a more pleasant odor, a lighter color, and a better kill at low concentration than similar products, maker reports.

Description: Sulfoxide-Pyrexcel 20 is a pyrethrum extract synergized with n-octyl sulfoxide of isosafrole (sulfoxide technical). It is a ready-to-use concentrated combination and need only be diluted with deodorized kerosene at the rate of 1 plus 19 to make a grade AA fly spray; or diluted 1 plus 9, it is said to be superior to the OTI against roaches.

Product is soluble in the usual insecticide base oils, compatible with the usual chlorinated hydrocarbon insecticides used in household sprays, and is of the same low odor of toxicity as pure pyrethrum extract.

Found effective when used for the control of Mediterranean flour moth, Indian meal moth, and confused flour beetle — either in the form of conventional dilute sprays or in the highly concentrated space spray.

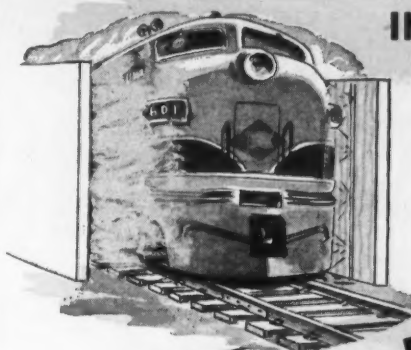
(Development of the S. B. Penick & Company, Dept. CP, 50 Church Street, New York 7, N. Y. . . or for more information check CP 1652 on handy form, pages 2 and 3.)

Outlines nature and uses of glass

Technology of glass is presented in 300-page volume. Book is compiled by eight specialists and surveys nature, production, and applications of glass. Among topics discussed in four sectional book are physical and chemical properties, structure, technology of glass articles, and chemical reactions of glass with other substances.

Book is freely illustrated and includes an appendix on spectral transmission of glass with diagrams which are applicable to the subject.

Volume is concluded with combined index and glossary of terms used in glass industry. To obtain "Glass" remit \$6.00 direct to Chemical Publishing Co., Inc., Dept. CP, 212 Fifth Ave., New York 10, N. Y. When inquiring specify CP 1653 on handy form, pages 2 and 3.



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As an ingredient in acid or alkaline industrial cleaner formulations, Marasperse prevents redeposition of removed soil and promotes streak-free rinsing.

**VERSATILE . . . EFFECTIVE
MARASPERSE**

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Low Cost DISPERSANT**

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Dilute suspensions are stabilized for prolonged periods —
Thin slurries remain fluid even if concentration is increased —
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CARBON BLACK

Marasperse is used to prevent lumping and maintain pumpability of concentrated carbon black slurries in the black-masterbatch process for synthetic rubber used in tires.

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Uniform coloring of wall-papers is easily obtained with Marasperse deflocculated pigments.

This is one of a series of ads highlighting applications of Marasperse. Let us cooperate with you in investigating the use of Marasperse in your products or processes. Write for additional information and samples.



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CHEMICAL DIVISION

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Acetate dyes, containing Marasperse, dye evenly without speckling and give maximum color value.



When inquiring check CP 1654 on handy form, pgs. 2-3

A COMPLETE TECHNICAL SERVICE by ANSUL EFFECTIVE AND ECONOMICAL USES OF SO₂ IN A VARIETY OF INDUSTRIES

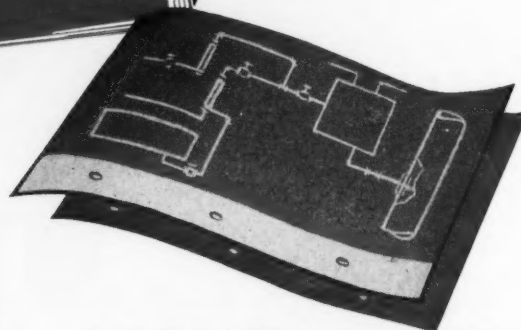
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SO₂
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New uses of liquid sulfur dioxide are continually being developed. It's HIGH PURITY, GREATER ECONOMY, AND EASE OF CONTROL provide a versatile and effective chemical to a great variety of industries.

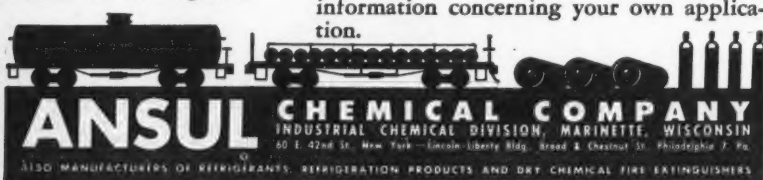
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CONSULT ANSUL'S STAFF of trained and experienced Chemical Engineers.

If you have a problem or process involving acidifying, neutralizing, bleaching, preserving, dechlorinating, reducing, deoxidizing, etc., Ansul's Engineers can be of service to you.

Call on them for assistance, without cost or obligation.



When inquiring check CP 1655 on handy form, pgs. 2-3

MATERIALS

Announce 2 new derivatives of castor oil . . .

propylene glycol ricinoleates for plastics, cosmetics, brake fluids

Uses: Suggested applications include use in cosmetics, hydraulic brake fluids, and as plasticizers for nitrocellulose, synthetic resins, and allyl starch.

Description: Propylene glycol monoricinoleate — Flexricin 9 — is a clear, moderately viscous liquid. It is insoluble in water and soluble in common organic solvents.

Propylene glycol ricinoleate, modified — Flexricin 14 — is a bright, clear, moderately viscous liquid. It also is insoluble in water and soluble in common organic solvents. Physical and chemical properties follow:

	FLEXRICIN	
	9	14
Density @ 25°C, lb./gal	7.99	7.97
Specific gravity @ 25/25°C	0.960	0.958
Refractive index @ 25°C	1.4695	1.4743
Color, Gardner	3	2
Volatile matter, %	1.2	0.8
Pour point, °F	—30	—45
Flash point (COC), °F	430	490
Fire point (COC), °F	505	530
Viscosity (GH), 25°C	K	S
Viscosity (SUS), 210°F	60	1090
Acid value	4	4
Iodine value	75	80
Saponification value	159	168

Although these derivatives of castor oil are made in commercial volume, they are not yet being regularly manufactured.

(The Baker Castor Oil Company, Dept. CP, 120 Broadway, New York 5, N. Y. is the maker . . . or for more information check CP 1656 on handy form, pages 2 and 3.)

Recommends plasticizer for pigmented and filled vinyls . . .

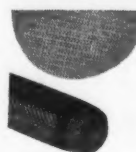
offers formulating economies without loss in quality

Uses: Plasticizer for vinyl chloride and vinyl copolymers. May be employed as the sole plasticizer, in blends with other suitable plasticizers, and extenders.

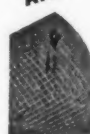
Because of its rather dark color, it is generally suitable for only filled and pigmented compounds. It is recommended for use in pocketbook stocks, gasket compounds, flooring, extruded molding, welding, and jacket stocks.

Features: As a secondary plasticizer for pigmented and filled compounds, it offers considerable formu-

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ALL SIZES
AND TYPES



Make "Cleveland Wire" your one-stop source of supply for strainers and filter screens. Whatever your filter problem, you'll find an answer at "Cleveland": Strainers and filters custom made in quantities one to a million, in all commercial metals.

We have the equipment, facilities and experience to better serve your needs. Write today for Bulletin No. 7.

THE CLEVELAND WIRE CLOTH & MFG. CO.
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When inquiring check CP 1657 on handy form, pgs. 2-3

DAMASCUS TUBE COMPANY
STAINLESS STEEL TUBING AND PIPE
GREENVILLE, PENNSYLVANIA

A NEW SOURCE FOR Stainless Tubing and Pipe

SIZES 1/2" to 3"

Prompt Response to Your Inquiry

DAMASCUS TUBE COMPANY
STAINLESS STEEL TUBING AND PIPE
GREENVILLE, PENNSYLVANIA

When inquiring check CP 1658 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

lating economies without substantial loss in quality.

It possesses good compatibility-stability as measured by window exposure tests. Stocks containing 60 parts Geon 101 and 40 parts of this plasticizer (stabilized with 1 part Tribase) have shown no exudation, tack, or stiffening after 8 months of exposure.

Description: Monoplex S-38 is a high molecular weight monomeric plasticizer. Its physical properties are tabulated below:

Appearance	clear, dark liquid
Acid number (mgm KOH/gm), max	5.0
Viscosity (G-H*, 25°C)	K-W
Solidification temp, °C	—6
Specific gravity, 25°C	0.9396
Flash point, °F	530
Refractive index, 25°C	1.4894

Initial studies on stability indicate that Monoplex S-38 responds very satisfactorily to stabilization with lead compounds. For optimum stability toward heat and light, it is recommended that 3-4% lead silicate be added to the S-38 formulations.

With such addition, for example, mill heat stability tests at 325°F show no change in flexibility over a 45-min cycle.

(Product of the Rohm & Haas Company, Dept. CP, Washington Square, Philadelphia, Pa. . . . or for more information check CP 1659 on handy form, pages 2 and 3.)

Revised catalog gives chemical information

Revised 40-page catalog includes all products of manufacturer's chemical division, including aldehydes, ketones, solvents, acids, and glycols. Extensively revised from previous editions, catalog now includes a number of new chemicals.

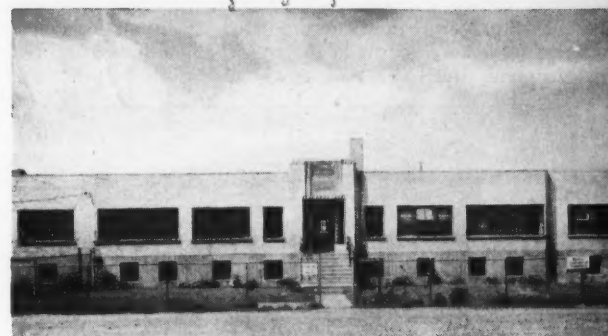
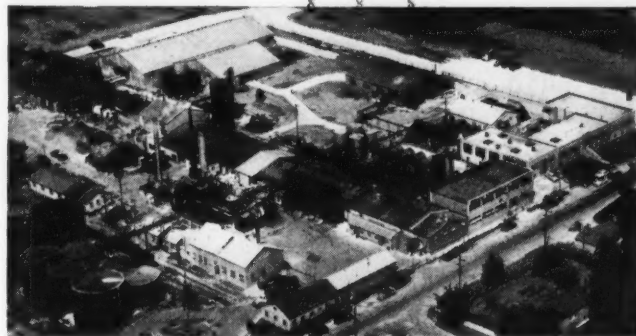
Considerable information on uses and applications of these compounds is given, as well as an extensive listing of physical and chemical properties of many of the chemicals. Product specifications are available, as well as shipping, handling, and toxicological data.

1952 catalog is issued by Chemicals Division, Celanese Corporation of America, Dept. CP, 180 Madison Ave., New York 16, N. Y. When inquiring specify CP 1660 on handy form, pages 2 and 3.

For more information on product at right, specify CP 1661 . . . see information request blank between pages 2-3.

APRIL, 1952

Witco's Balanced Expansion... of plant and lab...



boosts production of vitally needed chemicals ... assures maximum customer service

BALANCED GROWTH

WITCO has expanded both its manufacturing and its laboratory facilities in Chicago. This growth in Chicago is part of Witco's balanced expansion across the country . . . a carefully integrated program designed to bring you a fuller supply of chemicals, produced under constant quality control, with a maximum of technical service.

OF PRODUCTION

Witco's Chicago plant now brings you increased production of metallic stearates, driers, vinyl stabilizers, fatty acid esters, and other much-needed chemicals.

AND SERVICE

Witco's Chicago laboratory offers you complete technical service facilities, backed by an extensive research program in the fields of rubber, plastics, paint and general chemical processing. Witco works constantly on such problems as new and improved products for specific applications in the chemical manufacturing industry, the development of existing products to meet specific customer needs, improvement of finished products to provide uniformity of output, and servicing of customers' requests for assistance in the use and application of Witco products.

FOR YOU

Witco's technical service staff will be glad to help you with your chemical problems. Write us today.



WITCO CHEMICAL COMPANY

295 Madison Avenue, New York 17, N. Y.

Akron • Los Angeles • Boston • Chicago • Houston • Cleveland • San Francisco • London and Manchester, England

MATERIALS

Molded rubber being bonded to parts made of metal or ceramics . . .

reclaimed or natural stock, and Buna S, N, Neoprene, Butyl, Thiokol are all used

Highly specialized or custom fabricated parts made by bonding any kind of rubber to ferrous or non-ferrous metals and some ceramics have been announced. Rubber stocks can be selected for special qualities such as weathering, chemical or abrasion resistance, and so forth. Manufacturer is prepared to produce parts which meet SAE and ASTM specifications.

Wide variety of shapes can be produced and virtually any desired properties can be incorporated. By using declaimed or natural stock, or any of the synthetics — Buna S and N, Neoprene, Butyl, Thiokol, etc. — parts can be produced



Wide variety of shapes can be produced

with tensile strengths from 500 to 3500 psi, durometer hardnesses of 30 to 100, or elongations from 50 to 900%. In addition to this, bonded rubber-to-metal parts will withstand temperatures ranging from -75 to 200°F.

(This fabricating is done by Andrews-Alderfer Co., Dept. CP, 1043 Home Ave., Akron 10, Ohio.)

Surveys field of vinyl and related polymers

In brief, this 723-page book explains the preparation, properties and applications of vinyl and related polymers. Specifically, the following compounds are covered: methacrylic, acrylonitrile, acrylic acid, acrylic ester, vinyl acetate, vinylidene chloride, fluorovinyl, vinyl ether, sulfur-vinyl, and nitrogen-vinyl polymers.

Emphasized are the practical chemistry and physics of polymerization and the polymers, the basic inventions, the methods of synthesis, the advantages, and the limitations of the products. More than 4000 references from 1835 to the second half of 1951 are given along with the trade names of hundreds of European and American products.

In order to increase the scope of readership, the first chapter is written as an introduction to polymer science, theoretical and mathematical aspects are kept at a minimum, and simple name forms have been chosen. Special attention is given to recent developments and fields with which the author — Calvin E. Schildknecht of the Celanese Corporation of America — has had most experience, such as styrene copolymers, vinyl chloride copolymers, acrylic fibers and

MONSANTO
CHEMICALS — PLASTICS

FOR YOUR INFORMATION

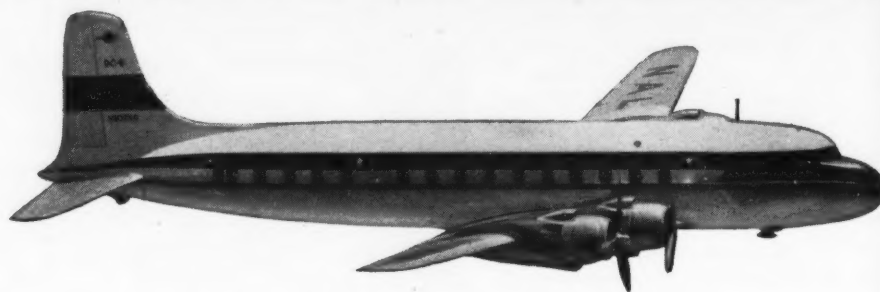
Every month Monsanto publishes these pages of pertinent information which may be helpful to you. This issue discusses:

Intermediate
Wood Preservative
Mildew Proofing
Hydraulic Fluid

AROCLORE in Pholite S-E
AROCLORE in Maintenance Paints
AROCLORE in Heat Transfer
AROCLORE as Co-plasticizers

Additional information will be furnished on request.

SKYDROL... up there with more and more big names!



Since Skydrol® was announced in January 1949, the nonflammable-type hydraulic fluid has won amazing acceptance among the big names of aviation.

Today, every domestic air line flying DC-6's employs Skydrol in cabin superchargers or throughout the hydraulic systems. Skydrol now serves 11 major air lines in planes with total flying hours exceeding a half million. It also is used by a number of overseas lines.

In addition, the new Convair 340's, designed for United Air Lines, have Skydrol throughout. It is employed in Douglas DC-6B's and Super DC-3's.

Air lines employing Skydrol are: United Air Lines, American Airlines, Italian Air Lines, Delta Air Lines, Cia Mexicana de Aviacion, Panagra, Philippine Air Lines, Braniff International Airways, National, Capital Air Lines and Slick.

Skydrol means greater safety for planes in flight and while they are being serviced. It protects passengers, service personnel and the multimillion-dollar investment in aircraft. Skydrol also is an excellent lubricant. It lengthens the life of hydraulic systems' working parts, brings important savings in maintenance.

Skydrol exceeds the nonflammability requirements of Aeronautical Material Specification 3150 . . . has more than double the lubricity of ordinary hydraulic fluids . . . is stable at operating temperatures and pressures . . . is noncorrosive to aircraft metals . . . is nontoxic.

If your company operates a business plane, if you fly your own ship or if you are an air line executive, it will be worth while to get complete information on Monsanto Skydrol. Mail the coupon for a copy of Monsanto's new, 20-page, file-size booklet, "Skydrol Nonflammable-Type Hydraulic Fluid for Aircraft."

Score of railroads use penta wood preservative

More than a score of major railroads are among the hundreds of industries employing Monsanto Penta preservative to make wood last many years longer, thereby reducing maintenance costs.

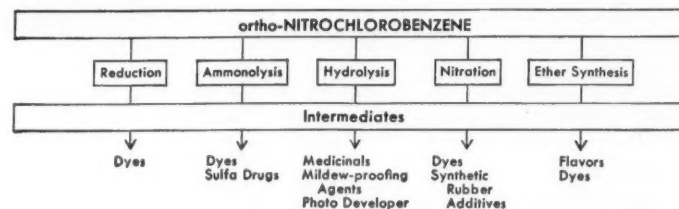
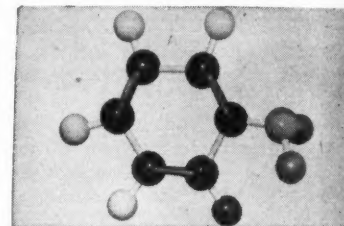
The following table gives the recommended retention of 5% penta solution in pounds per cubic foot:

	Humidity average to low	Humidity average high
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers	8-10	8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

Note: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.

Ortho-NITROCHLOROBENZENE, an "intermediate's intermediate"

Monsanto ortho-NITROCHLOROBENZENE might be called "an intermediate's intermediate" because of its versatility in the manufacture of derivatives which serve as intermediates. Its wide service to industry is illustrated by the following chart:



Ortho-Nitrochlorobenzene has the following physical properties:

Molecular weight 157.56

Standard form Crystalline mass

Color Greenish yellow

Crystallizing point 31.7° C. Min.

The versatility of this product indicates numerous applications yet to be discovered. If your research develops new uses, you may be sure of ample supply for production. Qualified chemists may get samples for experimentation by contacting the nearest Monsanto Sales Office or by mailing the coupon.

Milmer 1 controls mildew

Textiles, plastics, leather, insulation and protective coatings can be mildew-proofed efficiently and economically with Monsanto Milmer* 1 (copper 8-quinolinolate-T). Although highly effective against various fungi, Milmer 1 is practically non-toxic to man—neither a skin irritant nor sensitizer.

Milmer 1 offers long-lasting protection. It is nearly odorless . . . practically insoluble in water . . . stable at temperatures up to 400° F. . . is exceptionally stable under exposure to sunlight and weather.

Milmer 1 meets many U. S. Government specifications for treated fabrics, including: Mil-D-10860, Mil-T-10168A, Mil-M-5658, Mil-F-4143 and KKL-136-B.

For information, contact the nearest Monsanto Sales Office or mail the coupon.

NOW AVAILABLE

AROCLORS IN LARGER QUANTITIES

Additional capacity now installed makes the AROCLORS* (chlorinated biphenyl and chlorinated polyphenyls) freely available in larger quantities. For information on their use, contact any Monsanto District Sales Office, or write for any of the following Technical Bulletins: No. P-115, "THE AROCLORS" . . . No. P-124, "AROCLORS as used in chlorinated rubber" . . . No. P-126, "AROCLORS as used in Pliolite S-5" . . . No. P-131, "AROCLORS as co-plasticizers for polyvinylchloride."

Because of the growing recognition of the value of the AROCLORS in many types of chemical processing and formulating, some of the more important applications of these Monsanto chlorinated biphenyl and chlorinated polyphenyls are detailed in the columns at the right.



AROCLORS as used in Pliolite S-5

The AROCLORS are standard plasticizer and resin extenders used to impart desired properties to Pliolite S-5 protective and decorative coatings for application to—Concrete and Steel Structures . . . Railway Tank Cars . . . Concrete Floors and Walls . . . Stucco Construction . . . Wood and Metal Maritime Equipment.

These fast-drying paints provide excellent protection against acids and alkali, moisture and other common corrosive influences.



AROCLORS in die-casting machines

In the nonflammable hydraulic fluid field, particularly in die-casting machines, AROCLOR continues to be recognized as one of the most economical and effective of the nonflammable-type fluids used in transfer service. Die casters wishing to take advantage of the reduced fire hazard provided by AROCLOR, will find no difficulty in conversion. Ask for further information.



TOUGH PAINTS for tough jobs

If you are formulating a metal-surface paint that must be tough enough to resist water, acids, alkali and other corrosive actions, investigate the AROCLORS. They also contribute nonflammability, superior adhesion, high gloss. In addition, they possess good electrical properties.

Among the many uses of the AROCLORS in the coatings field are—Modified and synthetic rubber coatings . . . Lacquers . . . Hot-melt strip coatings . . . Vinyl protective coatings . . . Maintenance paints . . . Adhesives . . . Fire-resistant coatings . . . Wood-sealer formulations . . . Marine paints.



AROCLOR 1248 heat-transfer medium

AROCLOR 1248 (chlorinated biphenyl) is an ideal nonflammable liquid phase

heat-transfer medium for temperatures up to 300° C. It has been successfully used for many years with gas-fired units, having capacities in the range of 200,000 to 400,000 B.t.u. per hour—and more recently in much larger units. Other small electrically heated stationary and portable units, with capacities around 40,000 B.t.u. per hour, are also in service.

Some of the more important characteristics of AROCLOR 1248 are—Freedom from fire hazards . . . Viscosities permitting pumping at room temperatures . . . Boiling point sufficiently above 300° C. to assure a liquid condition at all times . . . Stability against heat . . . Controllable vaporization losses . . . General freedom from corrosive action.

For application information, send for Monsanto Technical Bulletin No. P-130, "An Indirect AROCLOR Heater for Unit Chemical Operations."

AROCLORS and biological resistance

Some recent tests which involved the standard screening procedure using the shake-flask method showed that Monsanto AROCLORS exhibited distinct resistance against fungi and bacteria. The presence of this resistance in a commonly used plasticizer indicates that further study of the AROCLORS could prove highly interesting where various types of organism attack are encountered. Excellent termite and other soil mite repellency are additional AROCLOR features.

MONSANTO CHEMICAL COMPANY, 1700 S. Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto Canada Limited, Montreal.

*Reg. U. S. Pat. Off.



SERVING INDUSTRY...WHICH SERVES MANKIND

SEND INFORMATION: ☐ Penta. ☐ Milmer 1.
SEND LITERATURE: ☐ Skydrol.
Technical Bulletins: ☐ No. P-115, The AROCLORS. ☐ No. P-124, AROCLORS as used in chlorinated rubber. ☐ No. P-126, AROCLORS as used in Pliolite S-5. ☐ No. P-131, AROCLORS as co-plasticizers for polyvinylchloride. ☐ No. P-130, An indirect AROCLOR heater for unit chemical operations.
SEND SAMPLE: ☐ Ortho-Nitrochlorobenzene.

MONSANTO CHEMICAL COMPANY
1700 South Second Street, St. Louis 4, Missouri

Please send, without cost or obligation, information, sample or literature as indicated at the left.

Name.....Title.....

Company.....

Street.....

City.....Zone.....State.....

MATERIALS

plastics, polyethylene, and polymers prepared by ionic reactions at low temperatures.

To obtain "Vinyl and Related Polymers," remit \$12.50 direct to John Wiley & Sons, Inc., Dept. CP, 440 Fourth Ave., New York 16, N. Y. When inquiring specify CP 1663 on handy form, pages 2 and 3.

Pigments and vehicles of coating specially selected to impart corrosion resistance . . .

no noticeable effect produced on immersion in acids of up to 10% concentration

Uses: Coating.

Features: Specially selected and treated pigments and vehicles (covered below).

Description: Pigments of Rid-O-Cor are: 1) selected for their high dielectric strength—to prevent corrosion through galvanic action; 2) treated in processing to prevent or repel moisture and corrosive agents from passing through film; 3) selected for inertness and non-reactivity to acids or other corrosive agents that may attempt to penetrate the film.

Vehicles of Rid-O-Cor are: 1) selected to prevent water and water vapor passage through the film; 2) selected to contain residual alkaline agents chemically combined and capable of neutralizing acids that may pass through the film; 3) formulated with a special styrenated alkyl vehicle characterized by excellent durability and corrosion resistance.

With respect to corrosion tests, no noticeable effect on product was observed upon immersion in hot or cold acids of up to 10% concentration. After 1000 hours of an accelerated weathering test, there was very little change in the film. The same is true of an actual outdoor application for 1 year in an industrial area.

Rid-O-Cor weighs 9.90 pounds per gallon and coverage possible is 400 square feet per gallon with a 1 coat system. It may be thinned with toluol or other aromatic solvent for spraying or dipping. Flexibility: no cracking on bending over 1/8 inch mandrel on 24 hour air dry, baked at 212°F.

(A product of Raymond C. Crippen, Dept. CP, Fleet St. and Central Ave., Baltimore 2, Md. . . or for more information check CP 1664 on handy form, pages 2 & 3.)

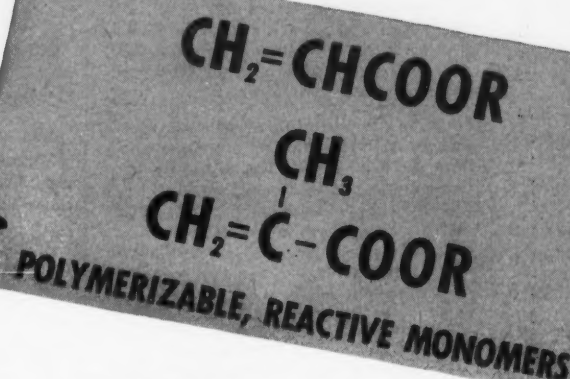
Exposure data tells durability of nickel-copper steels

Eight-page bulletin uses charts and graphs to describe effect of nickel on atmospheric corrosion in low alloy, high strength steels. Observations are based on certain specimens after 22 years of exposure. Simulated roofing tests were conducted under rural, industrial, and marine atmospheric conditions. Beneficial effects of varying nickel, copper, and other alloying elements are discussed. One general conclusion of report was that weathering resistance of steel increased with the amount of nickel present.

Other evidence indicated that phosphorus and silicon additions to nickel-copper steels have a beneficial effect in industrial areas over long exposure periods. The report "Atmospheric Durability of Steels Containing Nickel and Copper" is issued by The International Nickel Company, Inc., 67 Wall St., New York 5, N. Y. When inquiring specify CP 1665 on handy form, pages 2 and 3.

When inquiring check CP 1662 on handy form, pgs. 2-3

Acrylic Monomers



Available grades

Tankcar Quantities

Methyl Acrylate
Ethyl Acrylate
Methyl Methacrylate

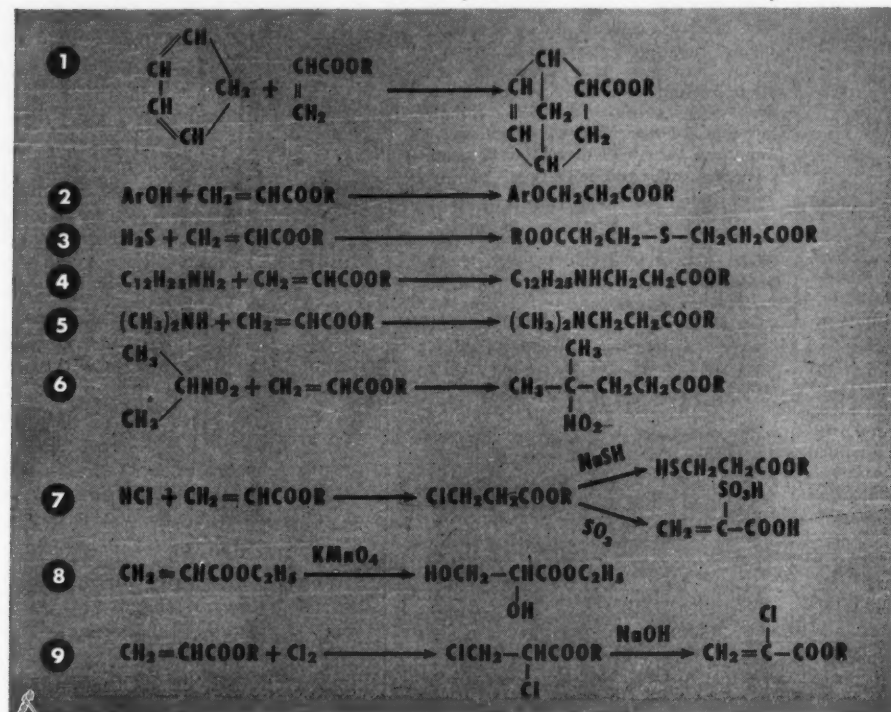
Drum Quantities

Ethyl Methacrylate
n-Butyl Methacrylate
n-Hexyl Methacrylate
n-Octyl Methacrylate
n-Lauryl Methacrylate
Methacrylic Acid

Pilot Plant Quantities

n-Butyl Acrylate
Isobutyl Acrylate
2-Ethylhexyl Acrylate
n-Octyl Acrylate
Acrylic Acid
Calcium Acrylate

Typical Reactions



Uses

Polymerization reactions with other monomers.
Chemical intermediate in organic synthesis.

Available now from
two plants (Bristol, Pa.
and Knoxville, Tenn.)

CHEMICALS  FOR INDUSTRY
ROHM & HAAS
COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.
Representations in principal foreign countries

Write Dept. SP for
new booklet: THE
MONOMERIC
ACRYLIC ESTERS



MATERIALS

Flotation frother has 'no' collecting power . . .

allows independent regulation of frother and collector

Uses: Flotation frothing agent for the mining industry. Applicable to selective flotation.

Features: Works well at one-quarter the concentration required for conventional frothers, maker reports. Little or no collecting power allows independent regulation of frother and collector, suiting requirements of selective flotation.

Description: Dowfroth 250 is a synthetic, water-soluble material with good frothing characteristics. Because it requires little conditioning time, it lends itself to stage addition. Froth is reported to break down readily in the froth launders and pump boxes.

Evaporation losses are negligible because of low vapor pressure. Low freezing point promotes easy handling in all climates.

(Product of the Dow Chemical Company, Dept. CP, Midland, Mich. . . or for more information check CP 1666 on handy form, pages 2 and 3.)

Reported to remove up to 10% its weight in moisture . . .

furnished in both 5 and 10 pound sizes plus pails and standard

Uses: Locations where it is desired to relieve conditions of moisture and excessive humidity.

Features: Reported to remove from the air up to 10 times its weight in moisture without requiring frequent "baking" or drying out.

Description: Hum-I-Dry is made in a special activated pelletized form. It is furnished in a 10-pound size with heavy galvanized drip pail and in a 5-pound size with smaller painted pail.

Hum-I-Dry has a sturdy wire standard which fits quickly and easily into the top of the pail and holds the material suspended — permitting air to circulate completely around it.

(Available from Speco, Inc., Dept. CP, 7308 Associate Ave., Cleveland 9, Ohio . . . or for more information check CP 1666A on handy form, pages 2 and 3.)

For more information on product at left, specify CP 1667 . . . see information request blank between pages 2-3.

CHEMICAL PROCESSING

MATERIALS

Compounded to resist shrinkage and swelling in various oil resistant uses . . .

will not corrode or otherwise damage aluminum, magnesium and other alloys

Uses: Specifically compounded for oil resistant applications, as in production of packings, bushings, seals, couplings, etc.

Features: Stated not to corrode or otherwise damage such metals as aluminum, magnesium and other alloys or stainless steel.

Description: Called X 1692, a Buna N compound of 70 Shore "A" durometer, it has a minimum swell in low aniline point oil, and a minimum shrinkage in high aniline point oil. Tensile strength is 1400 psi and elongation, 400%.

Compound met certain specifications in the following manner:

After aging in low aniline (157° F) point oil, 70 hr at 300° F

Properties	Specification	X 1692
Shore "A"	-20 to +5	-12
Elongation	-70% max	-55%
Volume change	0 to -20%	+12.5%
Surface	neither tacky nor decomp.	o.k.

After aging in high aniline (255° F) point oil, 70 hr at 300° F

Shore "A"	+10	+3
Tensile	-50% max	+12%
Elongation	-50% max	-30%
Volume change	0 to -6%	-3%
Surface	neither tacky nor decomp.	o.k.

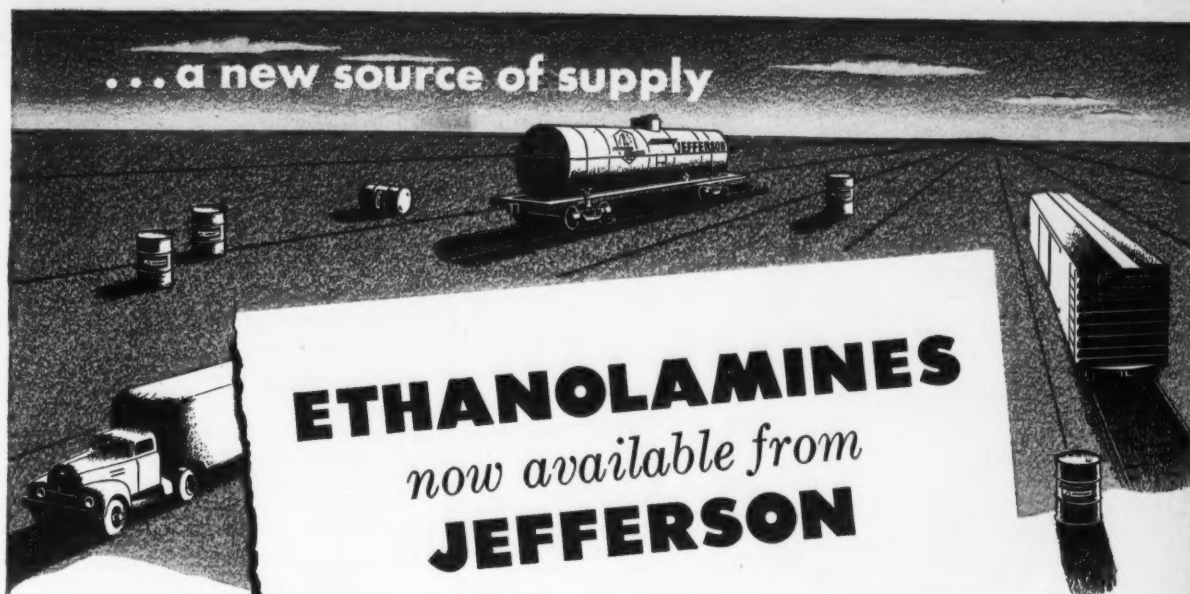
(Manufactured by Acushnet Process Co., Dept. CP, New Bedford, Mass. . . . or for more information check CP 1668 on handy form, pages 2 and 3.)

New edition of Merck Index of chemicals and drugs

Completely new Sixth Edition of publication contains 1167 pages of text covering more than 8000 descriptions of individual substances, more than 2000 structural formulas, and about 20,000 names of chemicals and drugs alphabetically arranged and cross-indexed. Features new to this edition include a table of standard buffers for calibrating pH measurements, a table of radioactive isotopes giving their half lives and types of radiation, and a table of current medical uses for radioactive elements and compounds. Among other editorial features is one section which lists more than 300 organic "Name" reactions with original and review references, and a description and structural representation of each reaction. There is a table of international atomic weights and an appendix containing information on such subjects as coal tar colors, thermometric equivalents, anti-freeze mixtures, refractive index of liquids, saturated solutions, atomic weights and their multiples and logs.

To obtain "The Merck Index, Sixth Edition", remit \$7.50 (\$8 for the thumb-index edition) direct to Publications Dept., Merck & Co., Inc., Dept. CP, Rahway, N. J. When inquiring specify CP 1669 on handy form, pages 2 and 3.

PROCESSING AND ENGINEERING DATA — sheets for insertion in loose leaf binders — pages 204, 6, 8, & 10.



... a new source of supply

ETHANOLAMINES

now available from

JEFFERSON

MONOETHANOLAMINE

For use as . . . a gas scrubbing agent for recovery of hydrogen sulfide and carbon dioxide . . . a chemical intermediate in the manufacture of various surface active agents, rubber chemicals, and other materials . . . an agent in the manufacture of antibiotics.

DIETHANOLAMINE

For use as . . . an intermediate in the manufacture of surface active agents used in textile specialties, herbicides, petroleum demulsifiers, etc. . . . a gas scrubber in refinery operations . . . a rubber chemicals intermediate.

TRIETHANOLAMINE

For use as . . . an intermediate in manufacture of surface active agents used in textile specialties, waxes and polishes, herbicides, petroleum demulsifiers, toilet goods, cement additives, cutting oils, etc. . . . a rubber chemicals intermediate.

Jefferson Chemical Company, Inc.

711 FIFTH AVENUE, NEW YORK 22, N. Y.

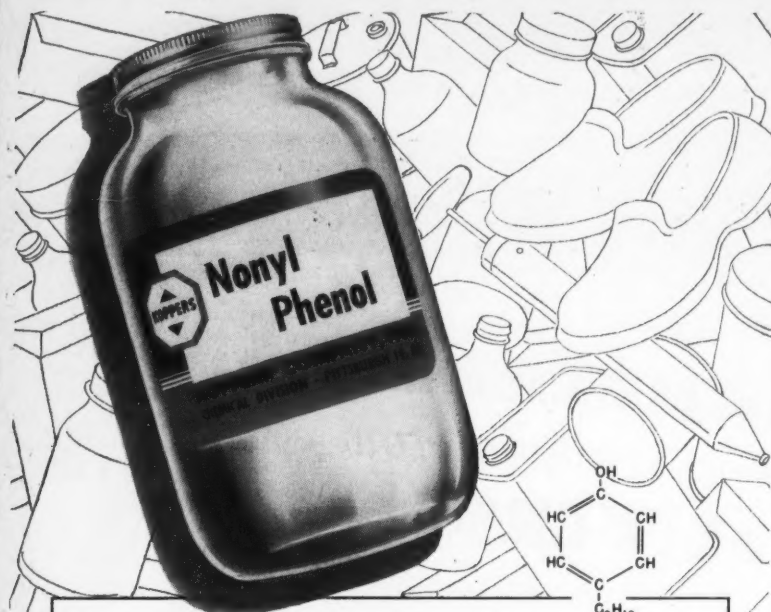


ESSENTIAL CHEMICALS FROM HYDROCARBON SOURCES

ETHYLENE OXIDE • ETHYLENE GLYCOL • ETHYLENE DICHLORIDE • DIETHYLENE GLYCOL
MONOETHANOLAMINE • DIETHANOLAMINE • TRIETHANOLAMINE

Shipped in tank cars or drums. For additional information about ethanolamines and technical data on these and other Jefferson chemicals, write to Department D. Ask for our new Product Bulletin.

When inquiring check CP 1670 on handy form, pgs. 2-3



Koppers Nonyl Phenol

One of a Series of Koppers Alkylated Phenols

Suggested for use in the production of a number of chemical products which require a mono-alkylated phenol of relatively high boiling point and molecular weight.

The properties of Nonyl Phenol indicate usefulness in the production of detergents, modified phenolic resins, non-ionic surface active agents, dispersing agents and wetting agents, lubricating oil additives and corrosion inhibitors, rubber chemicals, plasticizers, plastic stabilizers, germicides, insecticides, fungicides, oil soluble resins, tanning agents, dyestuffs and pharmaceuticals.

● KOPPERS NONYL PHENOL is produced in commercial quantities. It is a slightly viscous, clear liquid; only very slightly soluble in water, but miscible with common organic solvents.

REACTIONS

Two of the three normally reactive nuclear positions are unsubstituted in this alkylated phenol; they are

subject to such reactions as acylation, and condensation with aldehydes. It is a mixture of monononyl phenols, predominantly substituted in the para-position.

The unhindered phenolic hydroxyl group undergoes such reactions as etherification, esterification, vinylation, ethylene oxide condensation, and formation of nonylphenoxyacetic acid.

PROPERTIES

Boiling Range.....	290° — 300°C.
Hydroxyl Number (theory 255).....	250
Specific Gravity, 30°C.....	.940—.944
Refractive Index, 20°C.....	1.5118

FOR FURTHER INFORMATION
write to Koppers Co., Inc., Chemical Division

KOPPERS COMPANY, INC.
Chemical Division, Dept. CP-4
Koppers Building, Pittsburgh 19, Pa.



When inquiring check CP 1671 on handy form, pgs. 2-3

MATERIALS

Assists all types of naphthol dyeing, printing . . .

stabilizing and dispersing agent is for acid media

Uses: Stabilizing and dispersing agent for all types of acid media naphthol dyeing and printing.

Features: Results indicate that the agent's high stability and dispersing properties in acid media make it highly effective in pasting up and dispersing of bases when used in ratios of 1 to 2% on the liquor volume.

Has been unaffected by diazotizing in all applications and has promoted clear stable solutions of bases for long periods.

Addition of 1% of agent to the base or salt solution for naphthol dyeing of piece goods tends to disperse the unfixed color lake. Used in this manner, the agent was found to promote easier scouring of excess color from the fabric and reduce the tendency to crock.

Maker reports that the agent is an answer to the tendency of naphthol prints to bleed onto white grounds during soaping. Here, the agent is added to a salt or base print. In addition to fixing the print, it promotes removal of the thickener and reduces mark-off blotches at the nip rolls of the soaper.

Description: Telkanite M is a clear, water soluble oil. Its storage properties in the opened barrel are excellent. No jelling or solidification occurs on long standing.

(Product of the Dexter Chemical Corporation, Dept. CP, Boulevard PO Box 1, New York 59, N. Y. . . . or for more information check CP 1672 on handy form, pages 2 and 3.)

Design of Silastic-curing ovens covered in report . . .

data deals with temperatures, circulation of hot air, and ventilation of volatiles

Some important considerations in designing ovens for curing Silastic (silicone rubber) have been recently released by Dow Corning Corporation, maker of Silastics. The main points are summarized below.

Air circulating ovens should be able to reach 480°F and hold this temperature within a few degrees. It is desirable to use an automatic controller that increases the oven temperature at a fixed rate. Either electric resistance elements or fuel burners may be employed, and they should be in a separate compartment where fresh air from the room is heated prior to the time that it is circulated through the oven.

A separate heating compartment is desirable because it eliminates hot spots in the oven that are caused by radiant heat from the resistance elements or fuel burners.

Heated air should be circulated from side to side in a horizontal flow through the oven, rather than from bottom to top in a vertical flow. This is especially important when curing large flat sheets. Air should be taken into the heating compartment and vented from the oven at the rate of at least 2½ cfm for each pound of Silastic cured. It is most important to maintain this rate during the initial period of curing. After the parts have been held for about an hour at 480°F, the oven may be vented at a somewhat slower rate.

The oven should be vented to the outside of the building since volatile materials, including low polymer silicones,

Magnolia Airco

Nitrogen Hydrogen Rare Gases and Liquids

Are the Standard of Quality in the Southwest

Magnolia Airco gases — oxygen, nitrogen, hydrogen, argon, helium, neon, krypton, xenon, and liquid oxygen, nitrogen and air — are known throughout the Southwest for their high purity, unvarying uniformity and dependable quality. This uniformity and adherence to specifications of Magnolia Airco gases, and rare gas mixtures, are definite factors contributing to their satisfactory use.

And, no matter where your plant is located in the Southwest, you can depend on Magnolia Airco for a steady, dependable gas supply, packaged to meet your needs.

For more information, write your nearest Magnolia Airco office.



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A Division of Air Reduction Company, Incorporated
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Southwestern Headquarters for Oxygen, Acetylene and Other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories.

When inquiring check CP 1673 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

water, carbon dioxide, and formaldehyde, are evolved during the curing. Formaldehyde is combustible and irritating, and the low polymer silicones are combustible. The silicones will often decompose in a flame, forming a silica powder that will deposit on parts. This can happen when air from the oven is recirculated to heating compartment using a fuel burner.

Good ventilation is particularly important when handling Silastic stocks of the 7000 or 6-7000 series because mercury vapors are evolved in those cases. The oven should be equipped with a hood and suction fans to draw escaped vapors out of the building when dealing with these stocks.

Optimum properties cannot be developed in finished parts unless the volatile by-products are properly vented. Discoloration of parts and abnormally low durometer hardness and tensile strength may result from inadequate ventilation of the oven.

Screen or expanded metal shelves are essential to efficient operation. These shelves can be placed as close together as desired. Silastic parts should not touch one another, nor should they be stacked or otherwise distorted while they are being cured in the oven.

(Dow Corning Corporation, Dept. CP, Midland, Mich.)

New acrylic fiber makes debut . . .

processes on conventional equipment, finer sizes than formerly available acrylics

A new synthetic fiber developed by Cyanamid's Stanford Laboratories is currently being evaluated in textile products such as woven clothing fabrics, blankets, hosiery, and other knit goods. The material is known temporarily as X-51 acrylic fiber and is being produced in pilot plant quantities, in two types: a wool-like staple and a silk-like yarn.

Both types are reported to possess especially good color and a natural pearl lustre and can be dyed readily by conventional methods. Can be dyed a full range of shades with excellent fastness; the vat colors have especially good quality.

One of the greatest advantages of X-51 is that it can be processed in cotton mills or woolen mills with virtually no equipment modifications.

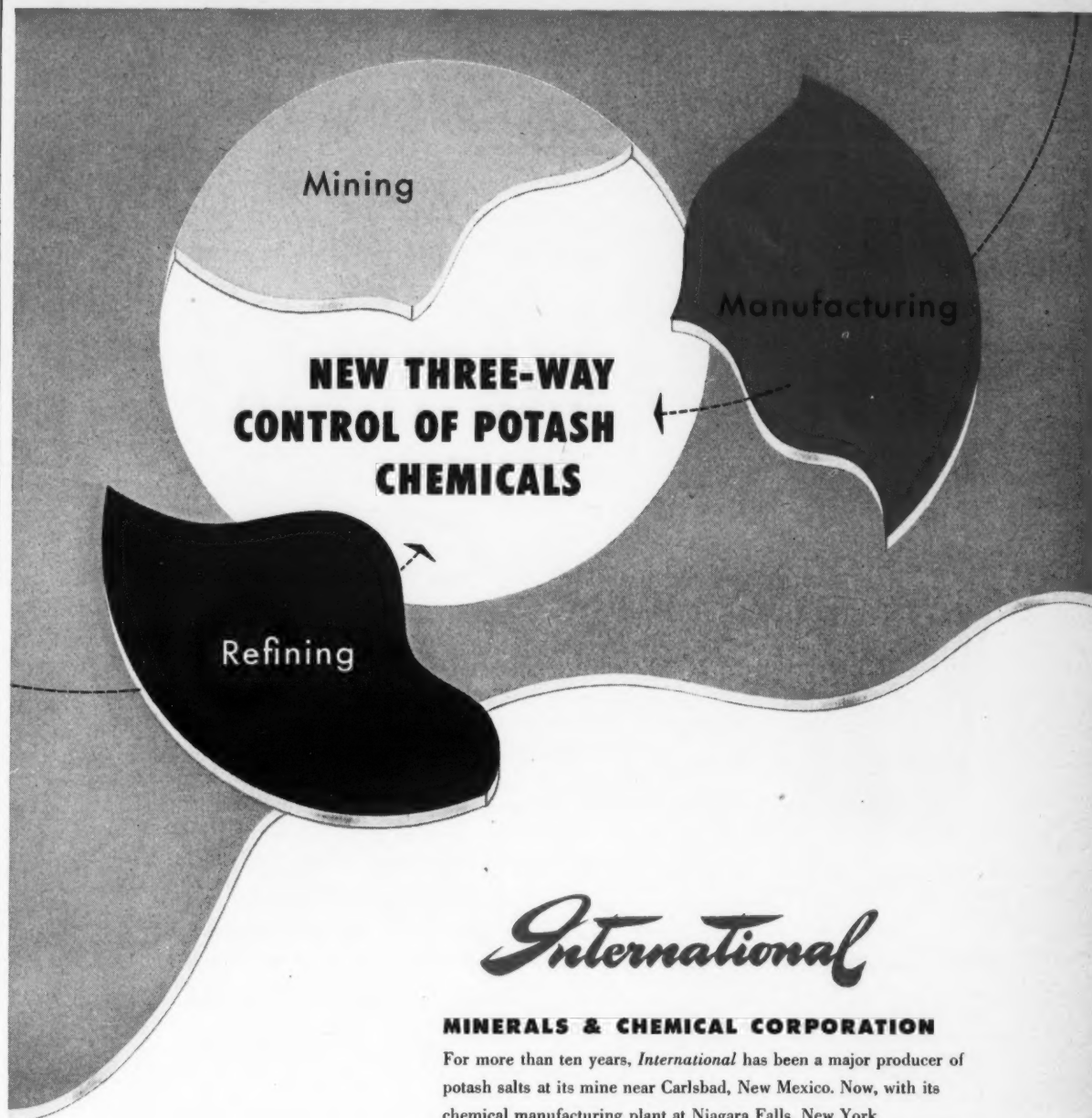
Wool-like textiles with the strength of cotton fabrics are obtainable. The fabrics hold creases even after washing, dry quickly, are resistant to acids and alkalis, are moth-proof, and do not shrink. Both washing and dry cleaning are possible. Fabrics can be ironed and pressed at the same temperatures as nylon.

Very light, cool fabrics can be made from X-51, or fabrics can be made which are warmer for any particular weight than is possible with any natural fiber, it is reported. Some staple is being produced in sizes finer than any heretofore available acrylic fibers. Silkiness of the filament yarn is due to the fineness.

During tests made on X-51 acrylic fiber, it showed no loss of strength after being buried for 6 weeks in soils containing micro-organisms which quickly cause cotton to disintegrate. Development of the fiber is credited almost entirely to acrylonitrile and to a special spinning method.

(Development of the American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, New York . . . or for more information check CP 1674 on handy form, pages 2 and 3.)

APRIL, 1952



International

MINERALS & CHEMICAL CORPORATION

For more than ten years, *International* has been a major producer of potash salts at its mine near Carlsbad, New Mexico. Now, with its chemical manufacturing plant at Niagara Falls, New York, *International* provides for the first time in the industry a *three-way control* in the production of potassium chemicals. *Mining. Refining. Manufacturing.* *International's* basic position in the potash chemicals field assures effective control at every stage of production, and large tonnages of chemicals carefully prepared to specifications.

Address Inquiries to Industrial Potash Department:
20 North Wacker Drive, Chicago 6
61 Broadway, New York, 6

POTASH DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Offices: 20 North Wacker Drive, Chicago 6

potash chemicals

Caustic Potash
All Standard Grades
Carbonate of Potash
All Standard Grades
Potassium Chloride-Refined
Potassium Sulfate

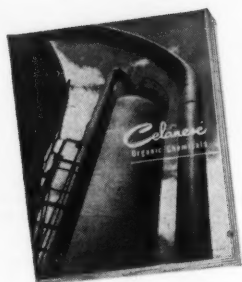


When inquiring check CP 1675 on handy form, pgs. 2-3

Your most reliable source

Acetic Acid

by *Celanese*



Write for your copy of recently published catalog "Celanese" Organic Chemicals."

CHEMICALS by CELANESE

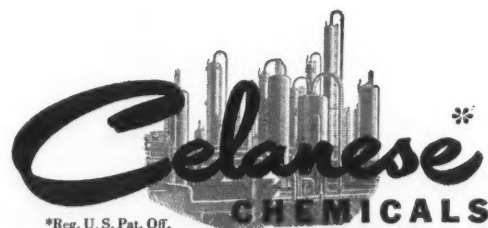
Acetic Acid
Butyl Alcohols
n-Propanol
Methanol
Acetaldehyde
Formaldehyde
Formaldehyde in Alcohols
Paraformaldehyde
Butylene Glycols
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Celanese' expanded production, research and quality control are ready to serve you. Your most reliable source of Acetic Acid can now be your principal supplier of this vital industrial chemical. New processing methods insure higher quality, greater production, lower costs, and now make Celanese Acetic Acid available to all industry in larger volume than ever before. Contract now for your increasing requirements of Acetic Acid.

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*Reg. U. S. Pat. Off.

When inquiring check CP 1676 on handy form, pgs. 2-3

MATERIALS

Credit outstanding performance to filter bags fabricated of siliconized glass fabric . . .

serviceable at temps to 550°F, resist corrosion, clean readily with minimum shaking

Uses: Silicone-impregnated glass cloth fabric for high-temperature dust collection applications in corrosive atmospheres.

Features: The unique process employed for impregnation yields a fabric that is permanently smooth, silk-like in texture, very flexible, and easy to fabricate. The flexibility is reported to extend the life of the fabric in service, and the smooth surface makes cleaning easier with less shaking. It is impervious to most corrosive chemicals which normally deteriorate wool or cotton bags.

Filter bags made of the fabric are over 90% efficient in the filtration of gases having in excess of 40% sub-micron particulate matter. Heats up to 550°F are entirely within serviceable limits.

Description: Maco fabric is one of the developments that came out of the multi-million dollar Los Angeles Air-Pollution Program. Yard goods of the fabric are available, as well as "engineered" weaves for specific uses. Results of permeability tests with standard fabrics (Maco #266 and 286) are tabulated below:

Maco Fabric	Meter Volume, cu ft	Meter Temp, °F	Volume @ 60°F, cu ft	Area of Test Drum, sq ft	Cfm/sq ft @ .05" H ₂ O
#266	3.34	45	3.44	.093	37.0
#286	.87	45	.895	.13	6.89

Manufacturer also processed Orlon fabric by the Maco process for use in medium-temperature applications—up to 350°F.

(Maco fabric is product of Menardi & Company, 1222 East Grand Avenue, El Segundo, California . . . or for more information check CP 1677 on handy form, pages 2 and 3.)

Optimistic outlook for metallized plastics . . .

high-vacuum process may eventually replace other processes for applying metal finish to plastics

The high-vacuum metallization process may eventually replace many of the other processes used for applying a metal finish to plastics, according to a talk delivered before The Society of the Plastics Industry by a spokesman for Distillation Products Industries.

In the process, a non-tarnishing, abrasive-resistant coating is applied to a plastic, metal, or other relatively non-porous base material. Three major steps are required in the high vacuum to build-up two layers of lacquer with the metal film as a filling.

First, the object is coated with a lacquer and baked to provide a suitable undercoat upon which to evaporate the metal. Then a thin film of evaporated metal is applied under high vacuum. The third step is coating with lacquer and baking to protect the thin metal film against abrasion and corrosion.

Optimistic future for the process lies in these points:

- 1) Use of vacuum metallization in most instances permits lower per unit processing costs.
- 2) Special surface finishes such as metallic colors and a

CHEMICAL PROCESSING

MATERIALS

brushed, hammered, or wrinkled effect can be produced without additional expensive operations.

3) Current government restrictions on the use of metals have little effect on the process because it uses only minimum amounts of metal.

4) Relatively simple variations of well-known handling techniques can be used.

5) The process is clean and eliminates the handling of dangerous or expensive liquid chemicals.

6) Cheaper base materials, such as regrinds, can be used without interfering with the quality of the final products.

(Summary of information received from Distillation Products Industries division of the Eastman Kodak Company, Dept. CP, 343 State St., Rochester 4, N. Y.)

Produce rubber from shrub in US as good as imported stock . . .

stated that quality of product is capable of meeting any critical need that may arise

Production in the US of natural rubber from the guayule shrub as good as imported rubber was revealed recently by a US Department of Agriculture speaker at a meeting of the National Farm Chemurgic Council in St. Louis, Mo.

Information on the rubber comes from research by the Bureau of Agricultural and Industrial Chemistry and the Bureau of Plant Industry, Soils and Agricultural Engineering on the guayule shrub. (Shrub is native to the Big Bend area of Texas, and to north central Mexico. Only experimental plots are now being grown in the US.)

To make rubber, the shrub is crushed in a pebble mill to coagulate the rubber latex; then the crude rubber is floated off with water and purified. It was stated that natural rubber could be produced of a quality capable of meeting any critical need that may arise. A 9 x 20 heavy-duty guayule rubber truck tire that had been run over 50,000 miles at a speed of 40 miles per hour was on display during the meeting.

(Information received from U.S. Department of Agriculture, Agricultural Research Administration, Washington 25, D.C.)

Review methyl ester reactions as organic intermediate

Five-page data sheet presents reactions and references to illustrate value of methyl dichloroacetate as an intermediate in organic syntheses. The colorless liquid is supplied in 99.0% minimum pure quantities with a maximum acidity of 0.30%. Two chlorine atoms are easily replaced by variety of organic compounds, indicating wide range of possible derivatives. Condensations and reactions with unsaturated compounds are featured for methyl ester.

Analogous reactions of ethyl dichloroacetate are presented but compound is not supplied commercially.

Methyl ester and amine combine in type reaction used in synthesis of antibiotics. Two-page bulletin supplements data sheet with survey of 17 compounds available as fine organic intermediates. Compounds appear in chart form with description, applications, mol wt, etc. "Methyl Dichloroacetate" and "Fine Organic Chemicals" are issued by American-British Chemical Supplies, Inc., Kay-Fries Chemicals, Inc., Dept. CP, 180 Madison Ave., New York 16, N. Y. When inquiring check CP 1678 on handy form, pages 2 and 3.

APRIL, 1952

HAVE YOU TRIED THESE

PHARMACEUTICAL INTERMEDIATES

AVAILABLE IN COMMERCIAL QUANTITIES

ETHYL FORMATE
 $\text{CH}_3\text{CH}_2\text{OCHO}$

ETHYL β -ETHOXYPROPIONATE
 $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_2\text{COOCH}_2\text{CH}_3$

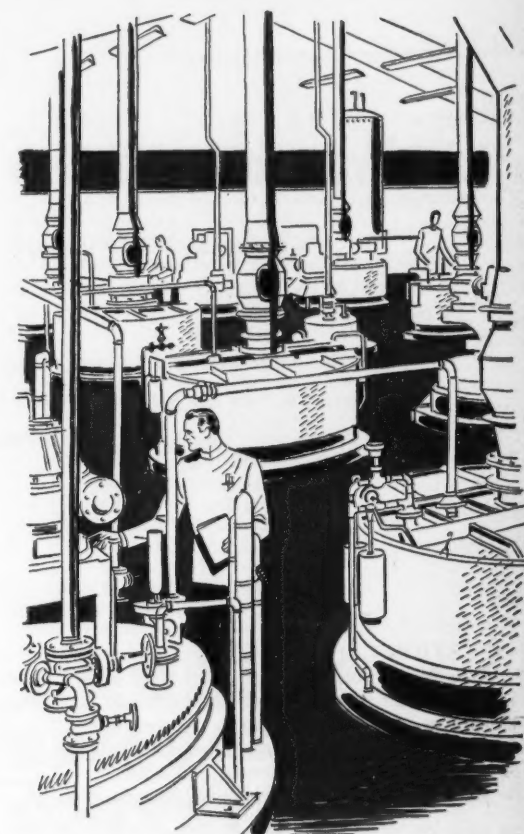
PENTANEDIONE-2,4
 $\text{CH}_3\text{COCH}_2\text{COCH}_2\text{CH}_3$

ETHYL FORMATE . . . intermediate in the synthesis of vitamin B₁, sulfadiazine, and sulfamerazine.

ETHYL β -ETHOXYPROPIONATE . . . important raw material for manufacture of vitamin B₁.

PENTANEDIONE-2,4 . . . raw material in the synthesis of 2-amino-4,6-dimethyl pyrimidine, an intermediate for making sulfamethazine.

These chemicals have many other potential uses as pharmaceutical intermediates. All three are available now in commercial quantities for your development or commercial production. For samples and further information, call or write us today.



You may be interested in testing these other CARBIDE intermediates and solvents for pharmaceuticals.

Acrolein—methionine and folic acid syntheses
Diethyl CARBITOL—inert reaction medium
Methyl Ethyl Pyridine—synthesis of nicotinic acid

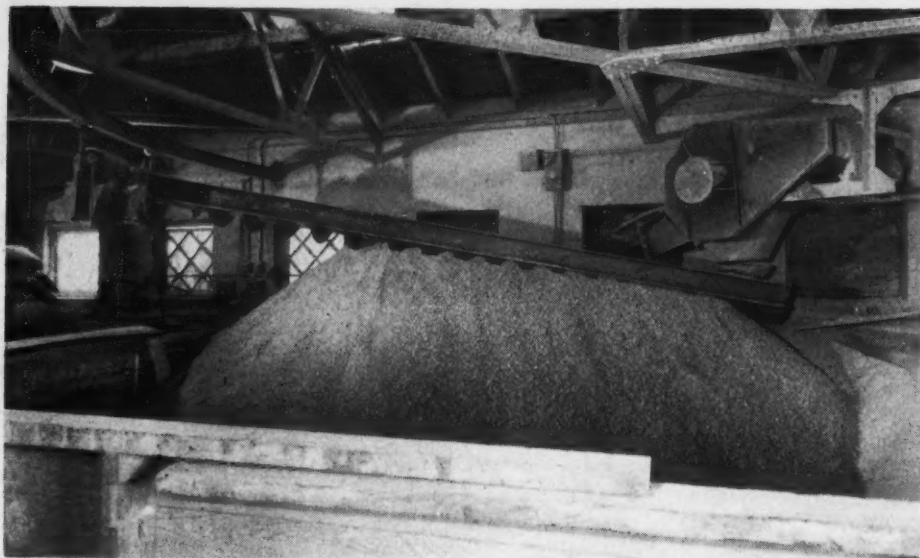
The term "Carbitol" is a registered trade-mark of Union Carbide and Carbon Corporation

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Offices in Principal Cities
In Canada:
Carbide and Carbon Chemicals, Limited, Toronto

When inquiring check CP 1679 on handy form, pgs. 2-3



Shells from hopper fall right through flights

Troughless Screw Conveyor Spreads Load in Bin

**Conveyors carry oyster-shell lime 140 feet —
from RR car to storage site in bin — without
any manual labor**

STATION C of the New Orleans Sewage & Water Board at Algiers, La. unloads a car of oyster-shell lime every three weeks. Until two years ago, this 45 to 50 tons of dusty material was unloaded by hand, rolled to the elevator in wheelbarrow, and hoisted to the upper floor of the chemical works.

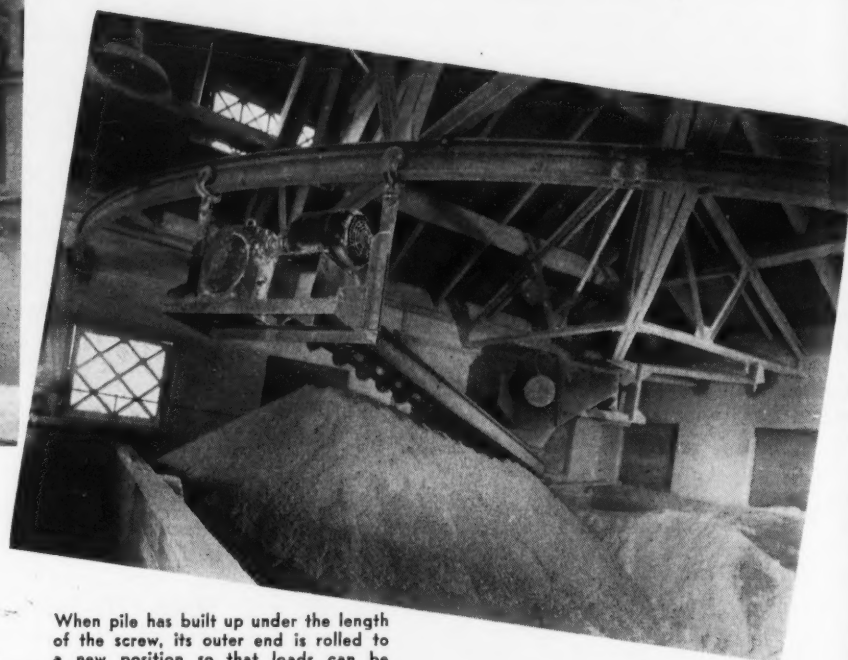
In addition to dust and housekeeping problems, this method of handling the lime cost about \$2.50 per ton, occasionally cost more than that when demurrage charges on idle cars were added. Holding the car beyond the allowed time couldn't be helped, because Station C was not always able to "borrow" four workers when it needed them.

Upshot of the situation was the installation of a push-button conveyor system. Now, a Bulk-Flo conveyor-elevator — with a 13-foot run under the car — catches the lime, carries it 35 feet (with a 15-foot lift) and

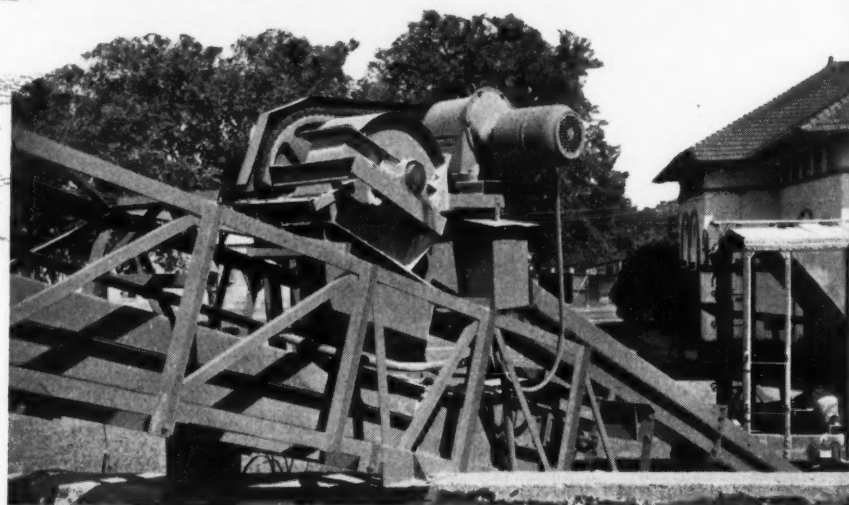
discharges to a second Bulk-Flo. Second conveyor discharges into a hopper 86 feet away.

Bulk-Flo conveyors are enclosed systems operating with the continuous column of material moved by flights attached to a drive chain. Self-feeding and discharging, they are dust-tight and compact. Important aspect of the conveyor is its ability to operate on the level, vertically, or at an angle. This can be clearly seen in this case — conveyor 1 switches from horizontal to inclined run under the car, elevates the oyster shells 15 feet in a 35-foot run; conveyor 2 operates at about 18°, lifts the shells more than 26 feet in its 86-foot run.

From hopper, shells drop into distributing screw conveyor. Outer end of the screw is supported from a curved 6-inch I-beam by ball bearing trolleys. Screw itself is 19-foot

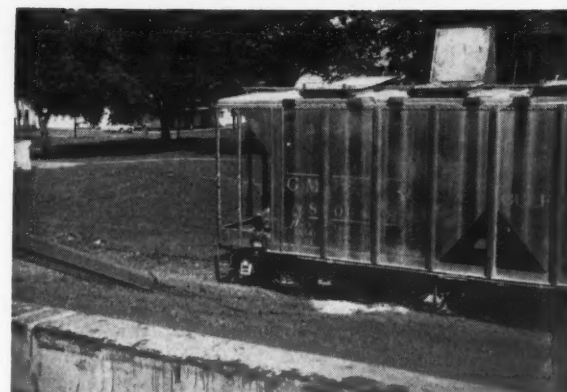


When pile has built up under the length of the screw, its outer end is rolled to a new position so that loads can be distributed as needed in the bin



Conveyor 1 switches from horizontal to inclined run under the car, elevates oyster shells 15 feet in a 35-foot run

Conveyor 2 takes shell lime from conveyor 1 and deposits it in hopper 86 feet away



Material Handling

long, 12-inch diam, and has no trough. Shells from the hopper fall right through flights of the conveyor until piled up shells reach the flights. Then, screw-action carries shells along and drops them at pile's edge. When pile has built up under the length of the screw, its outer end is rolled to a new position so that loads can be distributed as needed in the bin.

Ten tons of oyster-shell lime an hour flow through this system when it is running. There is no housekeeping problem now and no demurrage charge. Besides that, Station C is handling the lime at a lower cost.

(Installation was made by Link-Belt Company, Dept. CP, 307 N. Michigan Ave., Chicago 1, Ill. . . . or for more information check CP 1680 on handy form, pages 2 & 3.)

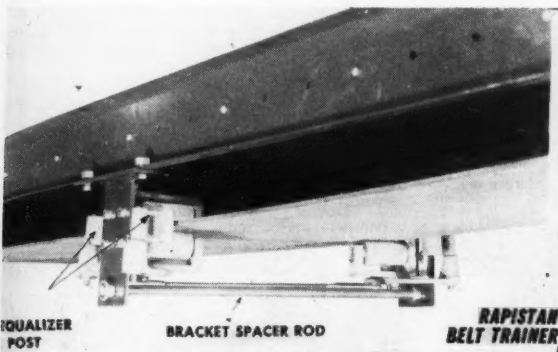
Keeps conveyor belts in alignment and gives longer life, cuts maintenance . . .

belt trainer can be installed on conveyors with return beds underneath without interference

Uses: Automatically keeps wandering belts of rubber or fabric constantly aligned.

Features: Trainer can be used on any make of conveyor which has the return belt underneath the bed. It does not interfere with normal conveyor operation, nor does it mark or wear the belt in any way.

Description: Designed for use on fabric or rubber-covered belts 3/16" or more thick and operating at speeds up to 200' per minute. Trainer is bolted to flanged rails on underside of conveyor. Flat sides of belt run between two sets of knurled spring-loaded



Eliminates wear of creeping belts

rollers, with belt edges contacting two sets of equalizer posts. If belt creeps to either side, it presses against these posts and cocks the spring-loaded, knurled rolls to the new belt direction. This forces the belt immediately back into perfect alignment, and the trainer mechanism returns to normal setting ready for next belt movement.

(Product of The Rapids-Standard Co., Inc., Dept. CP, 342 Rapistan Building, Grand Rapids 2, Mich. . . . or for more information check CP 1681 on handy form, pages 2 and 3.)

Readers of **CHEMICAL PROCESSING** are invited to submit concise briefs of their processing problems. With your permission these will be published (anonymously, if desired). We will place you in contact with any of the 33,000 people receiving CP who offer a solution.

Having Conveying Trouble of ANY KIND?



Check These Advantages!

- **LESS POWER REQUIRED**
(1000 foot-tons per hour per H.P.)
- **LESS MAINTENANCE & DOWN-TIME**
(Less power + good design = good service)
- **GREATER CAPACITY**
(From a dribble up to 200 tons per hour)
- **HIGH CONVEYING SPEED**
(Up to 100 feet per minute, on flat hauls)
- **NO DAMPENING UNDER LOAD**
(Designed with extra power for specified load, with positive stroke)
- **SELF CLEANING**
(Continuous smooth trough—no pockets)
- **SCREENS, DEWATERS, SEPARATES, BLENDS, DRIES, COOLS**
(Combines processing with conveying)
- **WIDTHS FROM 6" TO 48"; LENGTHS FROM 5' ON UP**
(With pans 16 gauge to 1/2" plate or heavier, open or enclosed)
- **BALANCED, VIBRATION-FREE UNITS AVAILABLE**
(For use on ceilings or light floor construction)

CARRIER NATURAL-FREQUENCY CONVEYORS

If you convey anything that's hot, sharp, powdered, oily, abrasive, sticky, wet, stringy or granulated, investigate this new conveyor.

Self-cleaning Natural-Frequency Conveyors have taken on some of the toughest, roughest, hard-to-handle products in America—are now conveying them smoothly, quickly and efficiently, *with an absolute minimum of wear, tear, maintenance and down-time!*

These spectacular new conveyors work on a unique vibrating principle which substitutes the natural resonance action of rugged coil springs, for brute force. Where up to 90% of the power output of a "brute-force" conveyor may be required to operate its moving parts—and only about 10% to convey its load—substantially no more power is required to *operate the Natural-Frequency Conveyor, empty, than to run the motor alone!*

Bulletin 104 will bring you all the facts about Carrier Natural-Frequency Conveyors, including vertical vibrating spiral elevators. *Mail the coupon today!* Carrier Conveyor Corporation (formerly Whitley-Carrier Co.), Frankfort Avenue at Clifton, Louisville 6, Kentucky.

Carrier Conveyor Corporation
Frankfort Avenue at Clifton, Louisville 6, Kentucky

Gentlemen:
Without obligation, please send me Carrier Natural-Frequency Conveyor Bulletin No. 104.

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Street _____

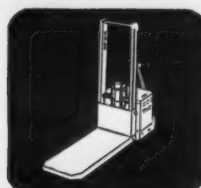
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Att. Mr. _____ Dept. _____

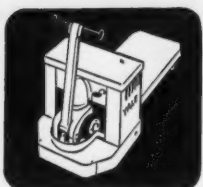
When inquiring check CP 1682 on handy form, pgs. 2-3



Pallet Work saver



High-Lift Platform Work saver



Platform Work saver



High-Lift Fork Work saver

Get heavyweight service
from welterweight trucks

YALE WORKSAVERS



Truck
Work saver

Use WORKSAVERS on low-load floors—in freight elevators and tight storage areas—wherever weight or space rule out big-truck use. Lift, stack, carry loads up to 6,000 lbs. easily and economically with YALE Work savers. Get all the quality performance that industry identifies with YALE Industrial Trucks of every kind.

Call your Yale representative for a Free Work saver demonstration

Get an eye-opening demonstration of rugged WORKSAVER performance. Be sure to ask about the famous WORKSAVER Power Team—Truck, Battery, Battery Charger. There's no obligation of course.

YALE is a Registered Trade Mark of The Yale & Towne Mfg. Co.

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Roosevelt Boulevard & Haldeman Ave., Phila. 15, Pa.

I want to know how YALE WORKSAVERS can help me.

- ☐ Please have your local Representative call.
☐ Please send free copy of GEMS OF LOW COST MATERIALS HANDLING at once.

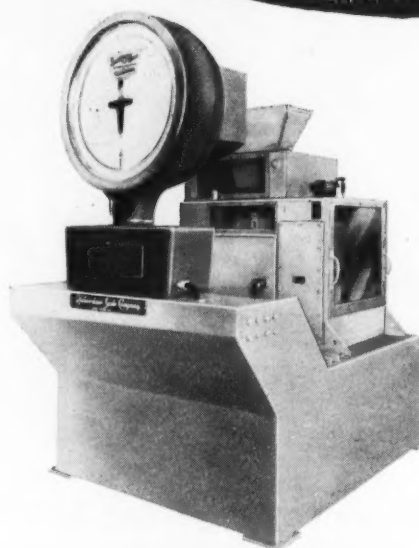
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In Canada write: The Yale & Towne Mfg. Co., St. Catharines, Ont.

YALE GAS AND ELECTRIC TRUCKS • YALE HAND TRUCKS • YALE HAND AND ELECTRIC HOISTS

One Scale+Electronic Circuit = Twelve Scales

Automatic system will consecutively deliver various weights according to pre-set timing, or will batch ingredients before discharging to mixer

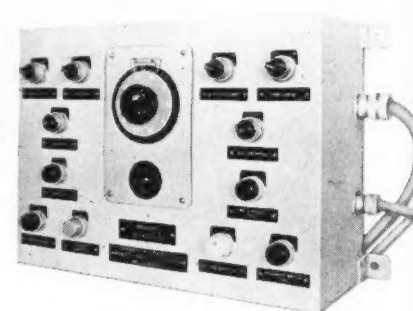
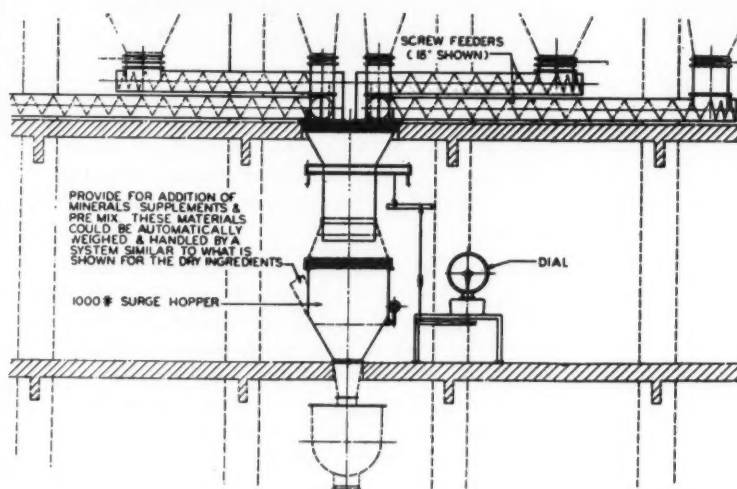


Compact Select-O-Weigh unit

scales. Control circuit has no arcing contacts, can be used in explosion-proof installation.

Description: Heart of the Select-O-Weigh is a simple electronic circuit. Standard Richardson automatic scale is used as the weighing element in the system, with a pendulum dial scale acting as the force-measuring component. Master control panel for any particular system is built to include as many setting dials as there will be ingredients in formulas handled—one dial for each ingredient.

When getting ready to weigh, the scale operator, who may be located in any part of the plant remote from the actual weighing operation, sets each dial on the control panel to correspond with amounts of each ingredient in



Control panel for the Select-O-Weigh

Front elevation of typical Select-O-Weigh installation. Here, the hopper scale is separate from scale dial

USES: Automatic weighing of a series of ingredients (two to twelve), as when making up a mixture. Control circuits may be arranged to provide either 1) delivery of consecutive weights of varying amounts according to a pre-determined schedule, or 2) accumulation of a total batch of pre-selected formula and its discharge to a surge hopper or mixer as a whole.

Features: One scale does work of twelve separate

his formula. Sequence of adding materials and the timing can be selectively controlled.

After control panel is set up, the "start" button is pushed, actuating the screw feeder mechanism and delivering to the scale the amount of material set on the first control dial and then stopping. This action is visible on the scale dial. Then, depending on the settings of the various selections and controls, the scale either discharges to a mixer or goes on to the next ingredient, repeating the cycle and adding this ingredi-

CHEMICAL PROCESSING

ent to the weigh hopper in the amount indicated by setting on the second control dial. Again, the pointer on the dial moves to its new position, as the material is added, and stops the action.

Following discharge of the automatic scale, a tare check circuit is brought into operation to prevent the scale from initiating the next weighing unless all material is cleared from the weigh hopper and the unit is in perfect empty balance. This is accomplished by electrically verifying the re-positioning of the dial scale pointer at exact zero or empty balance position.

A further elaboration of the system is the operation of repeater dials to indicate position of each pointer.

(Developed by Richardson Scale Company, Dept. CP, Clifton, N. J. . . . or for more information check CP 1684 in handy form, pages 2 and 3.)

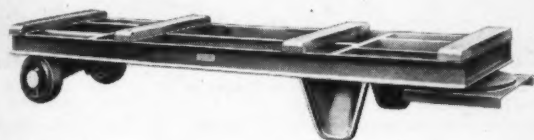
**Long material in short spaces
is easily handled with aid
of 2-wheel trailer . . .**

rubber-tired wheels with ball bearings give maneuverability to 10,000-lb load

Uses: For transporting multiple palletized loads of material and for general plant hauling.

Features: Maneuvers long lengths of materials in minimum width intersecting aisles. Twenty-four-foot load can be turned 90° in intersecting aisles as narrow as 11' 4". When moving, loads (up to 10,000 lb) ride on two rubber-tired wheels equipped with ball-bearings.

Description: In operation, lift truck engages coupling mechanism mounted on articulated turntable, lifts skid legs free of the ground and moves unit on its rear



wheels. Cranes or lift trucks may be used to load and unload the Trail-Skid, which can be used with or without stakes. Unit is available in five models — ranging from 7 to 16' in length.

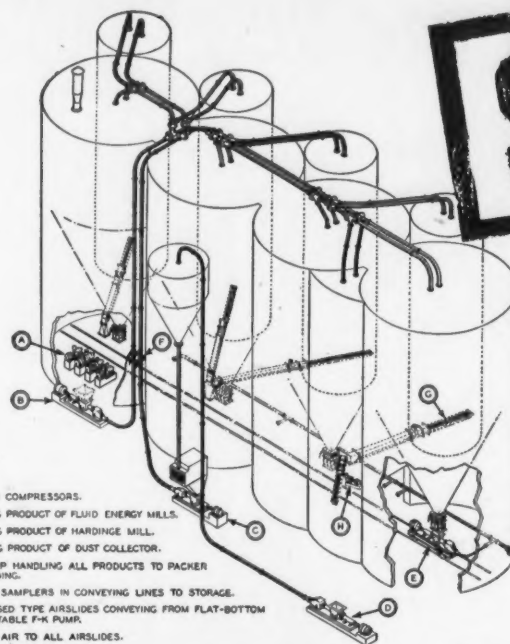
(Product of Phillips Mine & Mill Supply Co., Dept. CP, 2339 Jane St., Pittsburgh 3, Pa. . . . or for more information check CP 1685 on handy form, pages 2 and 3.)

**Pump bulletin features chart
for range and conversion**

Intended as a guide in selecting pumps to handle paper stock and similar material. Complimentary highlight is the design of an adapter and feeder vane assembly capable of handling 6% bone dry consistence pulp. The 16" suction pipe adapter permits a free flow of stock to pump entrance where feeder vane overcomes frictional resistance.

Included in the 8-page bulletin is a "Hi-Density" feeder capable of handling 8% bone dry consistence pulp. A universal joint spacer coupling intended to minimize alignment difficulties is described. Pumps are available in nine sizes and range in capacity from 175-10,000 gpm with heads up to 140'. Copies of Bul 08B7112A are issued by Allis-Chalmers Manufacturing Co., Dept. CP, 1151 S. 70th St., Milwaukee, Wis. When inquiring specify CP 1686 on handy form, pages 2 and 3.

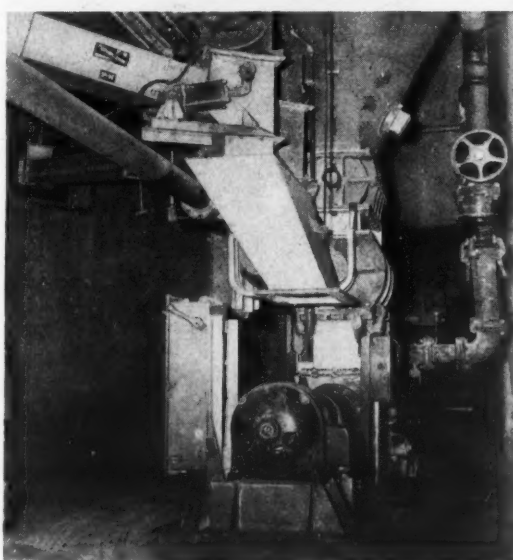
APRIL, 1952



- A. FULLER ROTARY AIR COMPRESSORS.
- B. F-K PUMP HANDLING PRODUCT OF FLUID ENERGY MILLS.
- C. F-K PUMP HANDLING PRODUCT OF HARDINGE MILL.
- D. F-K PUMP HANDLING PRODUCT OF DUST COLLECTOR.
- E. F-K PORTABLE PUMP HANDLING ALL PRODUCTS TO PACKER BINS OR BULK LOADING.
- F. FULLER-ANDERSON SAMPLERS IN CONVEYING LINES TO STORAGE.
- G. F-H OPEN AND CLOSED TYPE AIRSLIDES CONVEYING FROM FLAT-BOTTOM STEEL BINS TO PORTABLE F-K PUMPS.
- H. BLOWER SUPPLYING AIR TO ALL AIRSLIDES.
- J. ALLEVIATOR FEEDING PACKER BIN.



Loading bulk talc in box car



Fuller-Kinyon Portable Pump underneath silos. Airslide (upper left) from flat-bottom bin, for delivery to pump.

SOLVED

**Gouverneur Talc's
MATERIAL HANDLING PROBLEMS
with Fuller Conveying Systems**

Gouverneur Talc Company, (subsidiary of R. T. Vanderbilt Company of New York) has solved its conveying problems with a Fuller-Kinyon Conveying System and F-H Airslides. Three Fuller-Kinyon Stationary Pumps convey materials from pulverizers and dust collector to the storage silos and flat-bottom storage bins. One additional Fuller-Kinyon Portable Pump delivers "Nytal" talc from the silos and bins to the bulk-loading station and packer bin. Airslides, equipped with air-motor-operated cut-off gates, actuated by bin-level indicators in the packing bin, empty the flat-bottom bins directly into the portable-pump hopper.

Fuller equipment has solved Gouverneur's material handling problems conveniently and economically, reducing costs and increasing handling efficiency. It can do the same for your plant.

Ask for a free Fuller survey to determine the most economical and efficient method for handling your materials.

**DRY MATERIAL CONVEYING SYSTEMS
AND COOLERS—COMPRESSORS AND
VACUUM PUMPS—FEEDERS
AND ASSOCIATED EQUIPMENT**

Fuller

FULLER COMPANY
Catasaqua, Pa.

120 So. LaSalle St., Chicago 3
420 Chancery Bldg., San Francisco 4

G-72

When inquiring check CP 1687 in handy form, pgs. 2-3

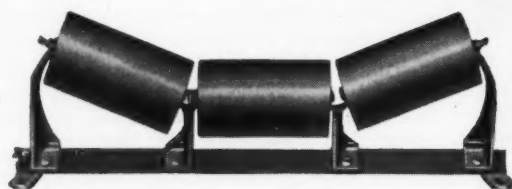
a big "hit" below the belt!

Nearly everyone realizes the advantages of belt conveyors for low-cost transportation of bulk materials. But what goes on below the belt is, perhaps, too often taken for granted. Certainly, the belt idler, more than any other piece of equipment, is responsible for the low cost of belt conveying per ton of material handled.

That's why Rex® Idlers are so often specified. Rex has been the leader in idler design and construction for over 25 years and sets the standard that others are working toward.

An idler must "keep rolling." If it freezes up, the belt will quickly wear through the roll, leaving sharp edges to cut your belt. The most common causes of idler "freeze-ups" are grit and dirt entering the bearings and build-up of material underneath the roll. To keep your Rex Idlers rolling, all you have to do is keep your deck plates clean. This will prevent material from building up on the rolls. The Rex Triple Labyrinth Grease Seal does the rest. The grease is there only to keep out dirt and grit, not to lubricate. With the special Rex seal design, the grease stays in . . . the dust stays out.

Remember, your idlers are the backbone of your entire belt conveyor. Don't gamble. Insist on Rex and be sure of a trouble-free performance year after year. For all the facts call your nearest Chain Belt Field Sales Engineer or write for Bulletin 51-81. Chain Belt Company, 4694 W. Greenfield Avenue, Milwaukee 1, Wisconsin.



For over 25 years Rex Idlers have been recognized as leaders in the field of idler design. Now Rex again leads the way with the flexible grease line. Note the accessible, protected location of

the fitting. Extension of tubing to far side can easily be done in the field without special tools. Flexible sections hug the inside of the base.



Chain Belt COMPANY OF MILWAUKEE

Atlanta • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Cleveland
Dallas • Denver • Detroit • El Paso • Houston • Indianapolis • Jacksonville
Kansas City • Los Angeles • Louisville • Midland, Texas • Milwaukee • Minneapolis
New York • Philadelphia • Pittsburgh • Portland, Oregon • Springfield,
Mass. • St. Louis • Salt Lake City • San Francisco • Seattle • Tulsa • Worcester

Distributors located in principal cities in the United States and abroad

When inquiring check CP 1688 on handy form, pgs. 2-3

MATERIAL HANDLING

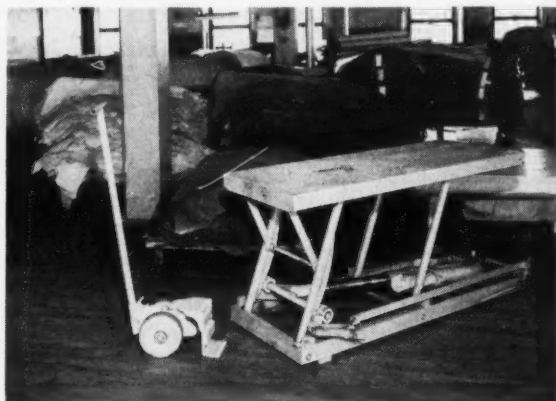
Loads are lifted hydraulically from 7 1/2" at floor level to height of 30" . . .

provides quick, easy height adjustment of material to meet worker's needs

Uses: For lifting loads of material up to working heights of 30".

Features: Vertical hydraulic lift reduces material handling costs by placing metal sheets, bars, pipes, rods, and structural shapes into position for fabricating machines. Lift allows quick, easy height adjustment of material to exact level of punch presses, press brakes, nibblers, iron workers, saws, spot welders, and many other types of metal working machines.

Description: Lift may be placed directly on or bolted to the floor for permanent installation. Standard model measures 24 x 60" and is 7" above floor when in lowered position, 30" high when raised. When



Lifts 2000 lb to height of 30"

mounted on wheels, lift can be used to bring material to the machine as well as to raise it to working height. Can also be used to transfer and install heavy dies and machines.

Lifting power is obtained by means of a foot-operated hydraulic pump built into base of the lift. Power operated pump may be substituted if required. Lift is accomplished through a camming action which rolls the load upward. Jerking movements are prevented in the ascent or descent of the load on the platform.

Standard model 2000 weighs approximately 375 lb and has capacity of 2000 lb. Although model is not equipped with wheels, a wide variety of heavy-duty wheeled equipment is available to fit various applications.

(Product of the Lange-Lift Company, Dept. CP, 102 W. Fowler St., Milwaukee 3, Wis. . . . or for more information check CP 1689 on handy form, pages 2 and 3.)

**Pumps corrosive or abrasive
hot or cold liquids
to 231' heads . . .**

handles liquids with solids in suspension up to 5% by volume with capacities of 600 to 1000 gpm

Uses: For pumping almost all process liquids, either hot or cold, in moderate capacities against low, medium, or high heads

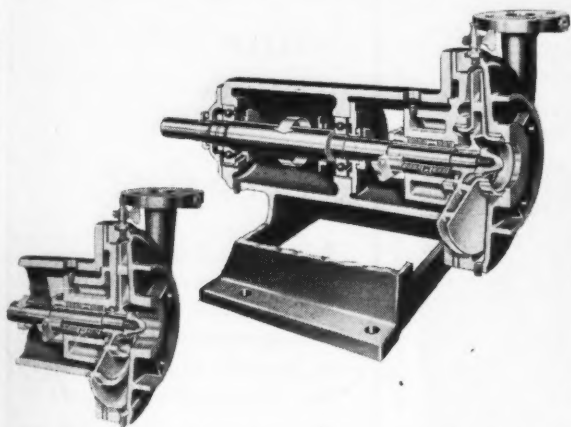
Features: Pump is designed to handle corrosive and abrasive liquids with solids in suspension up to 5% by

CHEMICAL PROCESSING

MATERIAL HANDLING

volume. Frame construction is such that several size pump liquid ends can be used on each size pump bracket, simplifying stock parts in user's inventory. Pump will operate against heads to 231'.

Description: Type DS is available in discharge sizes from 1" to 6". Enclosed or open impeller design is optional. With enclosed impeller, capacities up to 600 gpm are provided, while open impeller has capacity range up to 1000 gpm. Driver is standard, horizontal, electric motor mounted on common base with pump.



Specially adapted for pumping corrosive and abrasive liquids

Two basic designs are offered; grease or oil lubricated. Standard bearing construction for temperatures to 250°F is grease lubricated, while oil lubrication is utilized for temperatures from 250°F to 600°F or below the 250°F range if so desired. Cooling coils are provided in the oil-lubricated design for maintaining oil supply at proper temperature.

Coils are connected to an external supply through tapped connections in the side of the pump case. Provision also made for water cooling connections for temperatures to 300°F. Where a positive seal is desired, the pump can be equipped with mechanical shaft seal by manufacturer.

Pump liquid ends can be made of any required alloy, depending on intended service. Liquid end consists essentially of three parts — the case, the impeller, and the back head. Removal of case frame units permits easy, rapid removal of the three components.

(Product of Peerless Pump Div., Food Machinery and Chemical Corp., Dept. CP, 301 West Ave. 26, Los Angeles 31, Calif. ... or for more information check CP 1690 on handy form, pages 2 and 3.)

Unit load shipping cuts costs

Eight-page booklet points out value of unit load handling and shipping. Unitized loading techniques are tied in with recent ICC decisions which lowered pallet-return rates in Midwest. Bulletin pictures economy of unit load shipping by cutting manpower requirements and reducing pilferage and damage losses. Booklet is directed at manufacturers transporting their products in company-owned fleets or by common carriers.

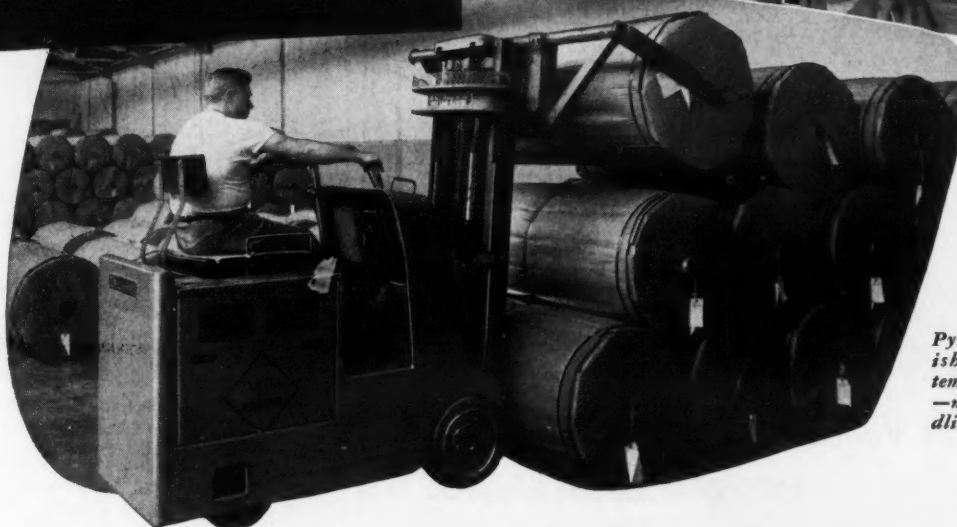
"Unit Load Handling and the Fleet Owner" is issued by the Baker-Raulang Company, Dept. CP, 1250 W. 80th St., Cleveland 2, Ohio. When inquiring specify CP 1691 on handy form, pages 2 and 3.

ELWELL-PARKER

TRUCKS

EASE the SQUEEZE

in round-the-clock production



Unit Load Handling of bale pulp saves time, labor and space.

Pyramiding finished fabric in temporary storage —note special cradling attachment.

At a large midwestern rayon plant, *continuous* operation is essential in many processes. Elwell-Parker trucks contribute mightily by steady, reliable service.

From basement storage, an E-P fork truck delivers baled wood pulp to the steeping room via elevator. It loads 3 four-bale tiers on the elevator and, with a fourth tier on its forks, rides to the third floor, where the material is distributed to the steeping presses. In 8 hours, this truck delivers enough material to keep the steeping presses going 24 hours.

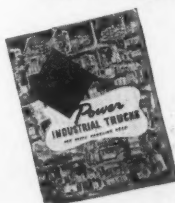
In another operation three fume-free electric E-P trucks are used in the aging room, which is windowless and under controlled temperature and humidity.

Here, Elwell-Parkers replaced hand

trucks. Loads are now 2½ times larger and are handled more safely. Elwell-Parker reliability really pays off in this continuous operation. Special automatic fingertip control for frequent start and stop and low pressure hydraulic system are employed on these trucks.

Another Elwell-Parker with cradle attachment carries rolls of finished fabric from the looms and pyramids them in temporary storage. One truck readily keeps abreast of the entire production.

Elwell-Parker trucks are preventing production bottlenecks in over 300 industries. For advice about your specific needs, request Elwell-Parker's *Industrial Logistics Service*. Write The Elwell-Parker Electric Company, 4015 St. Clair Ave., Cleveland 3, Ohio.



NEW General Catalog

describes all types of Elwell-Parkers in detail. Write for your copy NOW!

ELWELL-PARKER

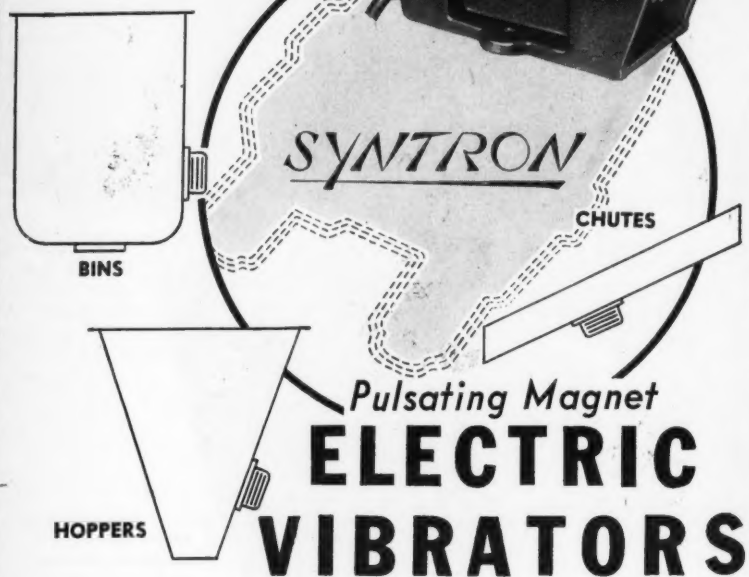
POWER INDUSTRIAL TRUCKS

Established 1893

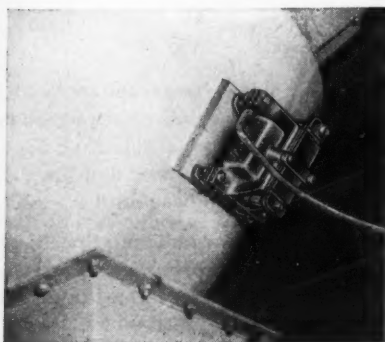
When inquiring check CP 1692 on handy form, pgs. 2-3

Assure
Free-Flowing

Bins, Hoppers
and Chutes
with



With Variable Control of Power



Applied to —

Hoppers: Conical; Rectangular; Parabolic; with Sloping Discharge; Vertical Side; Metal; Concrete; Wooden.

Bins: Rectangular; Cylindrical; with Flat Bottom and Center Discharge; with Hopper Bottoms.

Chutes: Inclined; Varied Shapes and Sizes.

FOR smooth material flow without unscheduled stoppages due to material arching and plugging, apply Syntrol Electric Vibrators.

They work faster, easier and better than the time consuming, damaging method of hammering and prodding to open clogged bins . . . cut excessive labor and replacement costs.

Write For **FREE** Illustrated Catalog Folder

SYNTRON COMPANY

110 Lexington Avenue

Homer City, Penna.

MATERIAL HANDLING

Pallet loads slide in and out of freight elevators on rollers of portable conveyors

short sections placed in cars and in front of car entrances permit fork truck to drop loads and get back to work

Use of short roller conveyor sections in freight elevators and at elevator entrances has enabled operators of Otis Terminal Warehouse, Cleveland, Ohio, to reduce to an exceptionally low level the idle time of elevators and the fork trucks which load and unload them. As the warehouse elevators do not have sufficient capacity to carry fork trucks, it was necessary to place skids carrying bags or cases in the elevators to be picked up again by truck when they arrived at other floor.

By spotting loads on the roller sections in front of the elevators, it is unnecessary for trucks to wait arrival of



After leaving pallet in conveyor, truck returns immediately to pick up another load

empty elevator. The roller sections make it possible for elevator operators to push loads into their cars with very little effort and take them to storage floor and unload them there.

Whenever possible, material is palletized on arrival and remains on pallets until it is shipped. Suppliers have been urged to ship on pallets.

Fork trucks handle pallet loads of bags and cases as well as drums. Drums are carried in a horizontal position and up-ended in storage by allowing them to slide partially off



Roller conveyors in elevator and on floor in front of car speed handling of pallets



*Have you
changed
your
address
recently?*

● If so, you'll want to insure that your copy of **CHEMICAL PROCESSING** reaches you without interruption. Just send us your new address . . . use the handy form below.

Please answer all questions in regard to your new affiliation, and in addition give us your former address including company, city and state.

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Present Company

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Main Product

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Rating of Company

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Street Address

.....
City Zone No. State



CHEMICAL PROCESSING

When inquiring check CP 1693 on handy form, pgs. 2-3

MATERIAL HANDLING

the forks while load is being raised slowly. A second tier of drums is then rolled on the up-ended drums to save floor space.

Battery-operated fork trucks handle a large part of the volume that moves into the plant every day. Much of this is fragile merchandise, including bottled goods, where smooth operation and raising and lowering of loads is required for the reduction of breakage to the absolute minimum attainable.

(Industrial trucks are built by Baker Industrial Truck Div. of The Baker Raulang Company, Dept. CP, 1250 West 80th St., Cleveland 2, Ohio . . . or for more information check CP 1694 on handy form, pgs. 2 & 3.)

(Portable roller conveyor sections are built by Lamson Corporation, Dept. CP, Syracuse 1, New York . . . or for more information check CP 1695 on handy form, pages 2 and 3.)

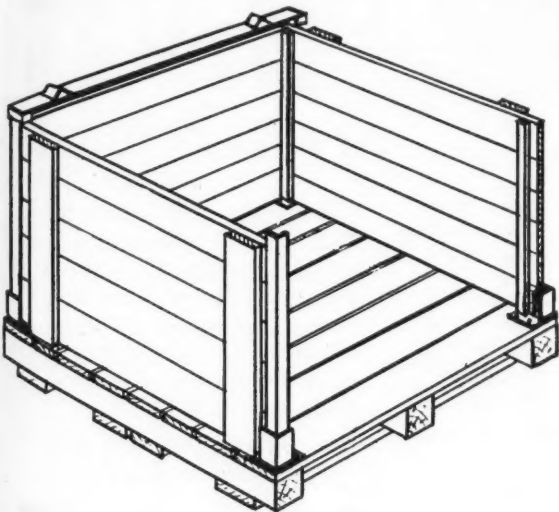
Knock-down stacking box is quickly assembled — loads to 5000 lb . . .

for fast assembly insert corner posts, slip in sides, and fit cross bar over top

Uses: For heavy duty as stacking box, bin, or pallet. Easily knocked-down and bundled for shipping.

Features: Quick assembly and disassembly without using tools. Simple conversion to open front bin by removing front panel.

Description: Wood pallet and four interlocking wood side panels are held in place by four structural posts which slip-fit into angle sockets. Four lag-screws



Remove one interlocking, wood side to make open front bin

secure sockets to corners of pallet. Cross bars, with alignment angles and end closures, slip-fit over top of posts to support the box above.

Alignment angles help center the box above and prevent slippage. Boxes now produced take loads up to 5000 lb, but can be supplied in any size and capacity required.

(Product of The Paltier Corporation, Department CP, 1701 Kentucky Street, Michigan City, Indiana. . . or for more information check CP 1696 on handy form, pages 2 & 3.)

APRIL, 1952

S-A REDLER Conveyors deliver cellulose acetate from the bottom of a silo to other silos or to processing at the Kingsport Tennessee plant of The Tennessee Eastman Company. An operator is shown taking a sample of material from one of the completely enclosed REDLER Conveyors. An S-A Circular Bin Discharger is also shown below the silo.

S-A

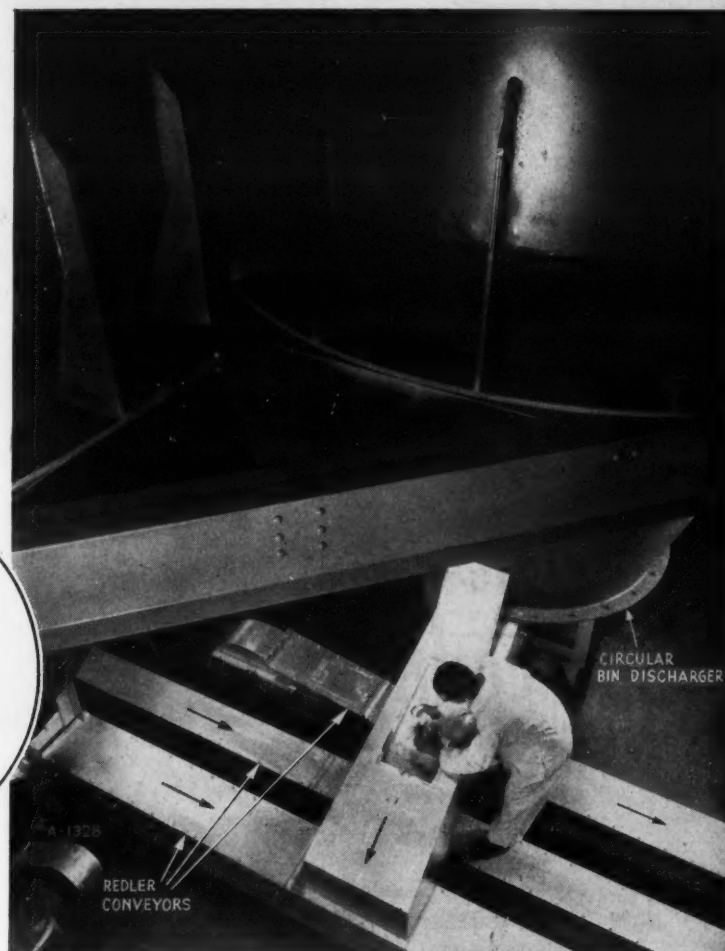
CONVEYING

Systems

for **AUTOMATIC STORAGE**
and delivery of chemicals
without **CONTAMINATION**

REDLER Conveyor-Elevators
ZIPPER Conveyor-Elevators
"Natural Frequency" Vibrating Conveyors
Belt Conveyors
Belt Trippers
Screw Conveyors
Bucket Elevators
Pan Conveyors
Belt, Pan & Plate Feeders
Circular Bin Dischargers
Flight & Chain Conveyors
Centrifugal Loaders & Pilers
Vibrating Screens
TELLEVEL Bin Level Controls
Ship Loaders & Unloaders
Crushers, Roll & Ring Type
Car Pullers & Spotters
Power Transmission Machinery
Hoists & Winches
Storage & Reclaiming Systems
Bin Gates, All Types

Write for Bulletins on any of the above



Each new handling problem presents a different and often unusual set of conditions. Yet, after study, S-A engineers frequently find that a similar problem has been met and overcome on some previous installation. It is from the drafting board of experience that many of the most important S-A bulk handling developments have been contributed to the chemical industries.

It is the S-A engineer's every job to adapt handling methods and equipment to specific situations. For a low-cost-per-ton solution to your particular conveying problems ask an S-A engineer for a recommendation . . . there is no obligation, of course.

STEPHEN S-ADAMSON
MFG. CO.

11 Ridgeway Avenue, Aurora, Illinois

Los Angeles, Calif., Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

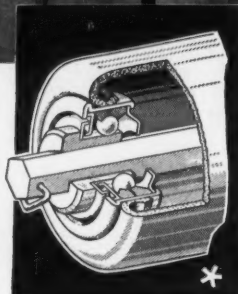
When inquiring check CP 1697 on handy form, pgs. 2-3

Buschman

CONVEYORS



**Trouble-Free
Service Insured**



**the heart of the roller
lubricated for life!**

More than a year's use shows that a Buschman Roller Conveyor has cut approximately 50% in assembly costs for a noted transmission manufacturer. "Highly satisfied with the installation," the user reports that the conveyor is particularly flexible, permitting time-saving straight line assembly never possible before in this operation.

There's a Buschman Conveyor to move practically any part or product faster, easier and at lower cost. Find out why users in every industry say Buschman Conveyors are "Better Built . . . A Better Buy." Write for literature: Catalog 60—Roller Conveyors or Catalog 400—Complete Conveyor Line.

*Dustproof labyrinth-sealed bearing, grease-packed for life. Ideal for heavy duty operation. There is a type to suit every requirement.

PRODUCE MORE...FOR LESS
Buschman
Conveyors

**THE
E. W. BUSCHMAN COMPANY**
Spring Grove & Clifton Avenues
Cincinnati 32, Ohio

When inquiring check CP 1698 on handy form, pgs. 2-3

MATERIAL HANDLING

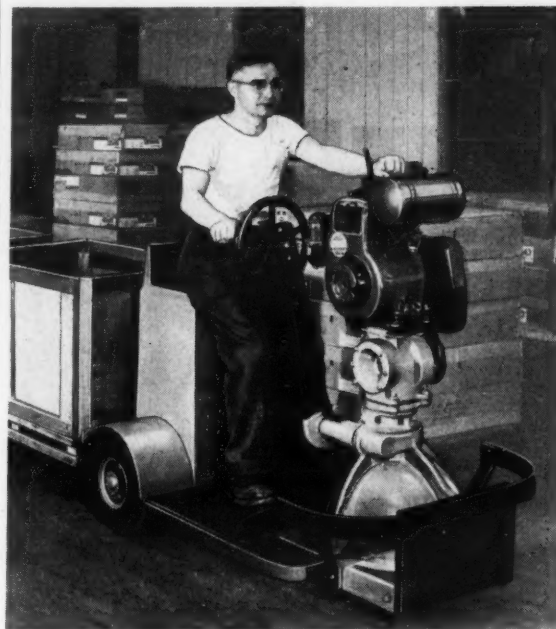
**Hauls up to 13 times its weight,
5.8 hp tractor operates
8 hr on 1 gal fuel . . .**

power turret has extreme maneuverability by revolving in 360° angle on pneumatic tires

Uses: For hauling cargo trains to or from elevators, floors, docks and dock-boards.

Features: Tractor is reported to pull 13 times its own weight (990 lb) on dry, level concrete.

Description: Powered by 5.8 hp gasoline air-cooled motor and equipped with heavy-duty pneumatic tires,



Compact tractor can pull 13 times its own weight

tractor can operate for 8 hours on approximately 1 gallon of fuel.

(Truc-Tor Model DR is developed by the Truck-Man Div., Dept. CP, the Knickerbocker Company, 568 Liberty St., Jackson, Mich. . . or for more information check CP 1699 on handy form, pages 2 and 3.)

**Dirt accumulation is minimized
by continuous surface area
of screw conveyor . . .**

sanitation is the main construction feature of conveying device

Uses: For supplying material to hoppers, feeders, troughs, drives, spouts, etc.

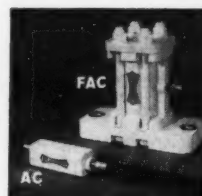
Features: Metal screw conveyor has smooth, continuous surface with no lap joints or crevices to accumulate dirt.

The joint between flight and pipe shaft is continuously welded on both sides of the flight. Welds have been ground to a smooth fillet and are polished to a No. 4 finish.

Description: Available in stainless steel, monel, aluminum and other metals, screw conveyor is offered in any standard or special size from 1 to 16" diam.

(Product of Kornylak Engineering Corp., Dept. CP,

STUCK



**Bin Stuck
Lately?**

Let's Keep it QUIET!

Cleveland Air-Cushioned Vibrators are moving and settling a wide variety of chemicals in bins, hoppers, chutes and screens. They're doing it efficiently, they're doing it every day and they're doing it QUIETLY.

Catalog No. 108 will give you further details.



2707 Clinton Ave. • Cleveland 13, Ohio

When inquiring check CP 1700 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MODERN TIME AND COST SAVERS

BUILT BY... **Standard**
GRAVITY & POWER
CONVEYORS



FASTER HANDLING IN SHIPPING ROOMS... with the HANDIBELT

Conveys bags, cartons, boxes horizontally or at any decline and incline angle within its range. Easily wheeled about by one man — easy to adjust and use — fits in crowded aisles, cars and freight elevators. Handles packages up to 135 lbs. TWO SIZES: No. 11 Handibelt, 11 ft. long, piles to 7 ft. 6 in; No. 16, 15 ft. 9 in. long, piles to 10 ft. 6 in. Write for HANDIBELT Bulletin — address Dept. CP-42

STANDARD CONVEYOR COMPANY

General Offices: North St. Paul 9, Minn.
Sales and Service in Principal Cities

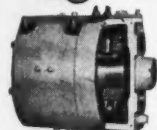
When inquiring check CP 1701 on handy form, pgs. 2-3

BAKER FORK TRUCKS

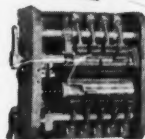
do more work per dollar invested



Engineering genius has developed Baker Fork Trucks for maximum utility, ease and economy of operation, low first cost and minimum maintenance. Components illustrated are typical of the many built-in features which make this possible.

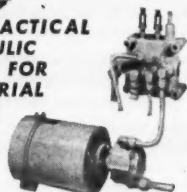


THE MOST EFFICIENT MOTORS FOR INDUSTRIAL TRUCKS



THE SAFEST CONTROLLER FOR INDUSTRIAL TRUCKS

THE PRACTICAL HYDRAULIC SYSTEM FOR INDUSTRIAL TRUCKS



Yours for the Asking!

16-page picture-story manual

"CARE and MAINTENANCE of INDUSTRIAL TRUCKS." Write for your copy today.

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Rauland Company
1208 West 80th Street, Cleveland 2, Ohio

Baker INDUSTRIAL TRUCKS

When inquiring check CP 1701A on handy form, pgs. 2-3

APRIL, 1952

MATERIAL HANDLING

513-521 Communipaw Ave., Jersey City 4, N. J. . . . or for more information check CP 1702 on handy form, pages 2 and 3.)

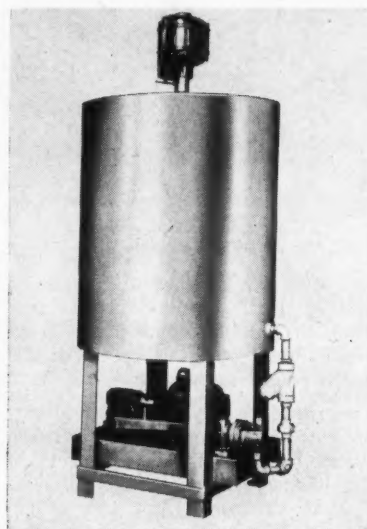
Unit delivers chemicals under pressure from tank . . .

motor-driven agitator keeps fluids well mixed at all times

Uses: For delivering chemicals and other liquids for processing. Can also be used for feeding boiler treatment.

Features: Packaged pumping unit delivers chemical and other fluids for processing in desired amounts under pressure. Specially-designed motor-driven agitator assures completely mixed fluids at all times.

Description: Chemical reservoir tank is of sturdy welded steel construction, available in 50 or 100 gal capacity. Chemical proportioning pump can be designed for various rates of feed at different pressures (250, 400, 500, and



650 psi are standard) while standard capacities range 0 to 5.1, 7.3 gph. Pumps are available in either single or duplex reciprocating types. A stainless steel strainer is provided between the suction side of the pump and the tank. Pump is mounted below tank to minimize air binding and to maintain a positive suction head. A duplex-pump model with divided tank is also available. Both types of units are supplied with complete necessary piping and are ready for connection.

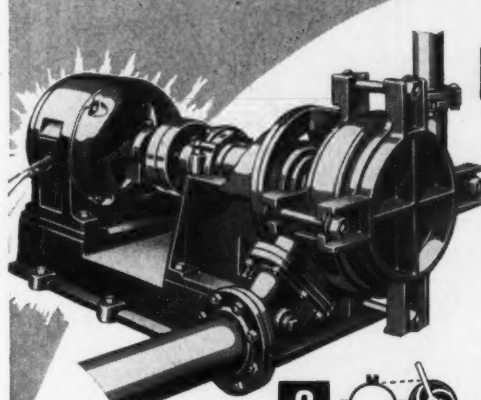
(Product of The Bird-Archer Co., Dept. CP, 4337 N. American St., Philadelphia 40, Pa. . . . or for more information check CP 1702A on handy form, pages 2 and 3.)

Morris

Type R Slurry Pump

Gives Longer Service, Less Trouble

because



No internal studs or bolts — no troublesome internal joints and fits. Suction Disc Liner is merely clamped into position between disc and shell. Fewer wearing parts mean less maintenance and longer uninterrupted service.



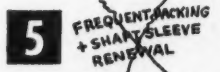
Impeller and shaft sleeve of the Morris Type-R Slurry Pump can be renewed without disturbing the suction and discharge piping or the bearings. This means considerably less lay-up time.



Due to the clamping effect of the bolts on the discs, the shell is not subject to high stress. Consequently, the shell can be made of a wide variety of materials, including those of high abrasive resistance. Yet these materials need not necessarily be of high tensile strength.



Hydraulic passages of the suction discs are extremely large and velocities are low. As a result, wear is minimized and renewal infrequent.



Stuffing box troubles are practically eliminated because the suction gland is under low suction pressure only.

Write today for free bulletin

Practical information in Bulletin No. 181 shows by performance curves just how the Morris Type-R Slurry Pump fits specific operations . . . describes exclusive construction features that cut operating costs.

FOR CHEMICAL OPERATIONS

Morris Type-R Slurry Pump handles mixtures containing ore concentrates . . . tailings, slag and residue from filters and classifiers . . . all types of caustic or acid mixtures containing abrasives or solids.

MORRIS MACHINE WORKS

Baldwinsville, N. Y.

Branch Offices in Principal Cities

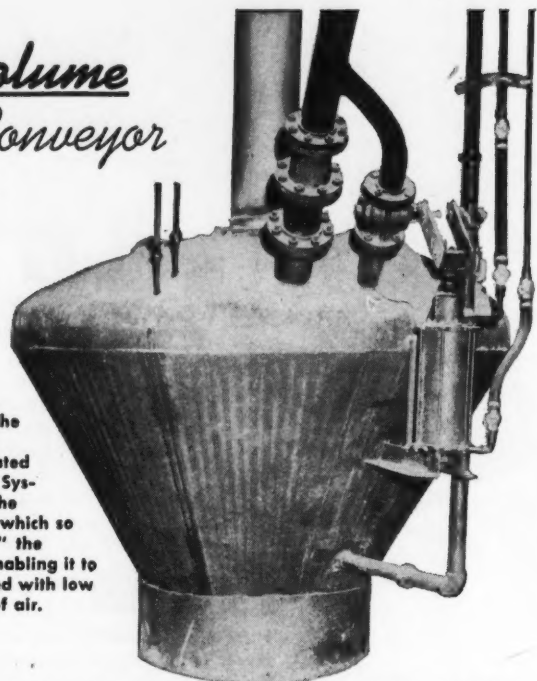
MORRIS

Centrifugal Pumps

When inquiring check CP 1703 on handy form, pgs. 2-3

Robinson *Air Activated* Conveyor

The *Low-volume*
Air Conveyor



Heart of the Robinson Air-Activated Conveyor System... the Activator which so "fluidizes" the charge, enabling it to be handled with low volumes of air.

Averages 1 Cubic Foot of Air per Pound of Materials Handled

Right here is one reason — and a stand-out reason — why the Robinson Air-Activated Conveyor is so economical in handling bulk dry-pulverized and fine-granular materials. Compressed air costs money so, if you can hold air costs down, as with the Robinson, you keep handling costs down. And no other power is necessary to operate a Robinson System.

The reason why the Robinson System can operate with such low air volume is due to the fluidized nature of the charge when transported through the pipes. Pressure alone will not suffice. It requires this Robinson Air-Activation or fluidizing effect. Material "flows" rather than blasts through.

Many Robinson Systems are in service handling a variety of products and in some cases are transporting them several thousand feet. This system may be just what you need for handling those dry, bulk materials in your plant. It has several outstanding features which we'll be glad to discuss at your convenience.

ROBINSON

Air Activated

A Division of
Morse Boulger Destructor Co.

CONVEYOR SYSTEMS

211-V EAST 42nd ST. • NEW YORK 17, N. Y.
Representatives in Principal Cities

When inquiring check CP 1704 on handy form, pgs. 2-3

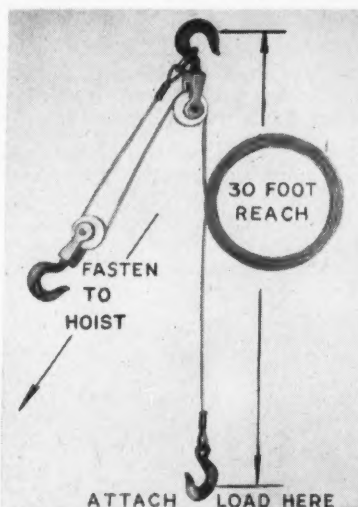
MATERIAL HANDLING

**Hooks combine to lift
750-lb load through
30' distance...**

ground operation of hoist assures
safety of workers

Uses: For lifting of pipes, motors, ducting, unit heaters or construction equipment to ceilings or construction locations. Is also suited for pulling up broken overhead conveyor chains.

Features: When 6-lb (Longlift) accessory is used with manufacturer's 8½-lb hoist it can lift objects weighing 750 lb through distance of 30',



Six-pound accessory makes
30' lift possible

although any hoist of 15' minimum may be used. Operation is normally from the ground. Only the 6-lb accessory need be taken up the ladder for overhead suspension.

Description: Accessories are lightweight. Minimum distance between hooks is 10". Is also available in 1½-ton capacity. (Product of The Lug-All Company, Dept. CP, 331 E. Lancaster Ave., Wynnewood, Pa. . . or for more information check CP 1705 on handy form, pages 2 and 3.)

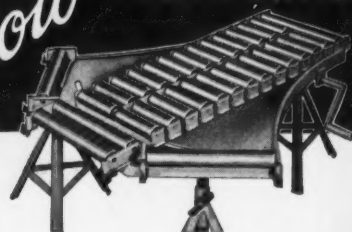
**Report "wide" story
of conveyor belt
manufacture...**

endless stainless steel belt measures
100' x 55"

A one-piece, polished stainless steel conveyor, reported by its manufacturer to be the widest of its kind ever fabricated, has been completed.

Measuring 55" x more than 100', the endless belt has a special transverse welded joint. Welded area was finished to same thickness as the basic belt, then polished to same as balance

3 WAY *Flow* "FLEX-A-SWITCH"



THROUGH
LEFT

RIGHT
THROUGH

RIGHT
LEFT

"LINE-Y"
ADAPTATION

Flexible midrib and segmented side rails keep axes concentric at any setting to assure positive line of travel without guard rails. Can be used with curves and straight sections to distribute work in production or warehouse handling.

Furnished Through and Right only; Through and Left only or Right and Left and Through.

Write For Details

METZGAR CO.

METZGAR

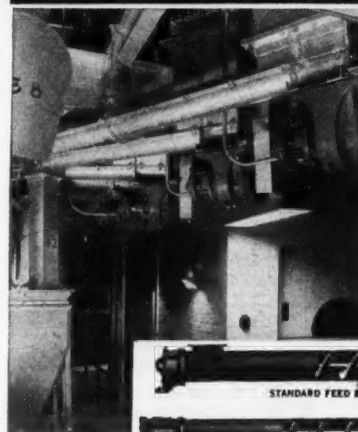
MFGS. OF WHEEL & ROLLER GRAVITY &
LIVE ROLLER CONVEYORS • POWER BELT
CONVEYORS • SWITCHES • ACCESSORIES
• REEL DOLLIES & END-WOOD WHEELS.

449 Douglas, N.W.

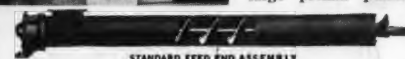
GRAND RAPIDS 4, MICH.

When inquiring check CP 1706 on handy form, pgs. 2-3

"HAMMOND" Screw-Veyor
HELPS MAKE AN IDEAL...
ALL-AUTOMATIC BATCH PLANT!



Screw-Veyor simplifies the handling of free-flowing bulk materials, in that it is totally enclosed, highly efficient, clean and synchronizes with any processing procedure from receiving point to storage or packaging. Requires no more space than a pipe of comparable diameter. Photo shows specially engineered Screw-Veyor Feeders handling bakery ingredients in a large premix plant.



STANDARD FEED END ASSEMBLY



STANDARD INTERMEDIATE ASSEMBLY



STANDARD DISCHARGE END ASSEMBLY

Screw-Veyor furnished in precision-built assemblies to conform with any layout. Write for Form M-600-2

A COMBINATION OF THE ABOVE THREE ASSEMBLIES
FORMING A TYPICAL SCREW-VEYOR ASSEMBLY

Screw Conveyor Corporation
699 HOFFMAN ST. HAMMOND, IND.
ENGINEERS **HAMMOND** MANUFACTURERS
TRADE MARK REG. U.S. PAT. OFFICE

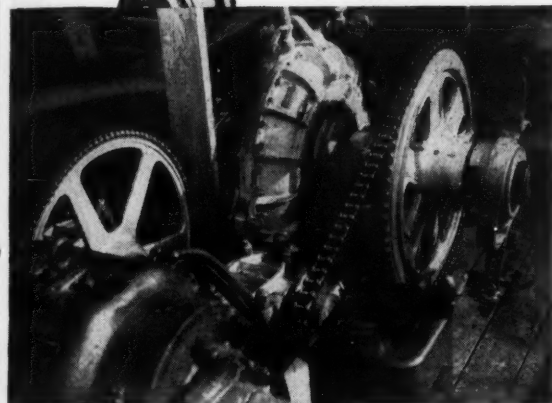
When inquiring check CP 1707 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NO WASTED POWER WITH

DIAMOND ROLLER CHAINS

- No slip—machinery operates at maximum output rate continuously.
- 98-99% efficiency at point of use.
- Long life performance reduces down time, maintenance and replacement expense.
- Exclusive Diamond uniform quality.



Center Distances Can Be Long Or Very Short

Shaft to shaft operation can be accomplished without slip regardless of center distances. The wide range of types and sizes of Stock Sprockets meet most all Roller Chain Drive requirements.

DIAMOND CHAIN CO., Inc.

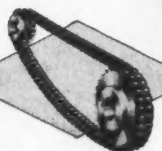
Dept. 411 402 Kentucky Avenue,
Indianapolis 7, Indiana

Offices and Distributors in All
Principal Cities

Refer to the classified section of your
local telephone directory under the head-
ing CHAINS or CHAINS-ROLLER

DIAMOND

ROLLER CHAINS



A copy of
Catalog 709
is yours for
the asking.

MATERIAL HANDLING

of the belt. Special camber controlled edges were fabricated to prolong belt life and to aid in belt tracking. Manufacturer reports the belt provides corrosion resistance and a contamination-free carrier leaving no mark on the final finished product.

(Development of Metalsmiths Div., Orange Roller Bearing Co., Dept. CP, 555 Main St., Orange, N. J. . . or for more information check CP 1709 on handy form, pages 2 and 3.)

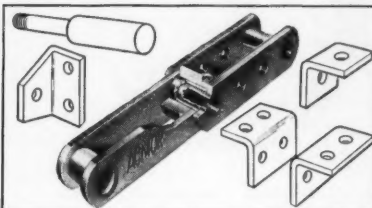
Repairs are made easily on conveyor chain . . .

stock attachments are now available in all pitches

Uses: For constructing an unlimited variety of conveyors from chain and attachments that can be stocked.

Features: Stock attachments are available for all pitches which are either welded or bolted to the chain.

Description: Type HP (Hollow Point) is available in either a steel



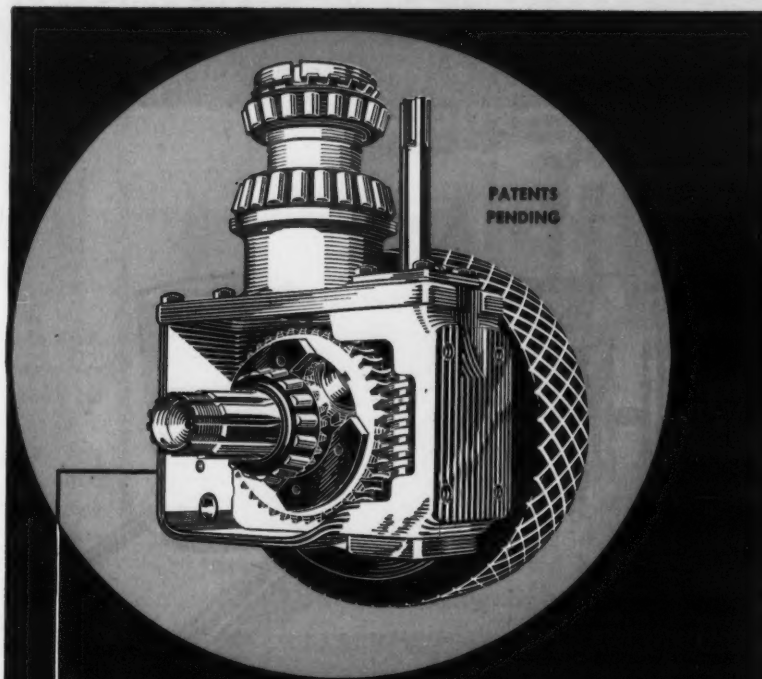
roller or bushing type in 2, 2½, 3, and 4" pitch. On special order it is also available in various strengths and pitches up to 12".

(Developed by Acme Conveyor Chain Co., Dept. CP, 17700 Broadway, Bedford, Ohio . . . or for more information check CP 1710 on handy form, pages 2 and 3.)

Explains pallet rollers' special features

Four-page, two-color, illustrated brochure describes manufacturer's pallet rollers in three styles: Stevedore, Reefer, and Swivel. Specifications are given for each. Features of the rollers as listed by the brochure are: 1) large diameter rolls, 2) crowned ends for floor protection and free rolling, 3) "dead" large hexagon axles, cotter-keyed in frame for easy service so that only the bearings can turn, and 4) heavy-duty ball bearings, fully lubricated.

Bul 102 is issued by the Frank L. Robinson Co., Dept. CP, Latham Square, 508 16th St., Oakland. When inquiring specify CP 1711 on handy form, pages 2 and 3.



outwears chain drives 10 to 1

This sealed gear drive guarantees much longer life for the Hydroelectric. Requires little maintenance . . . and only minimum attention. The sealed Gear Drive in the Hydroelectric Lift Truck is Stuebing engineered to give maximum service life without fuss or bother. This exclusive feature eliminates the main cause of excessive repairs and costly down-time in truck operation. All gears and running parts are sealed in lubricant. It is the widely accepted automotive type differential gear drive.

Over 1071 different types, sizes and models — there is one for every need.



LIFT TRUCKS

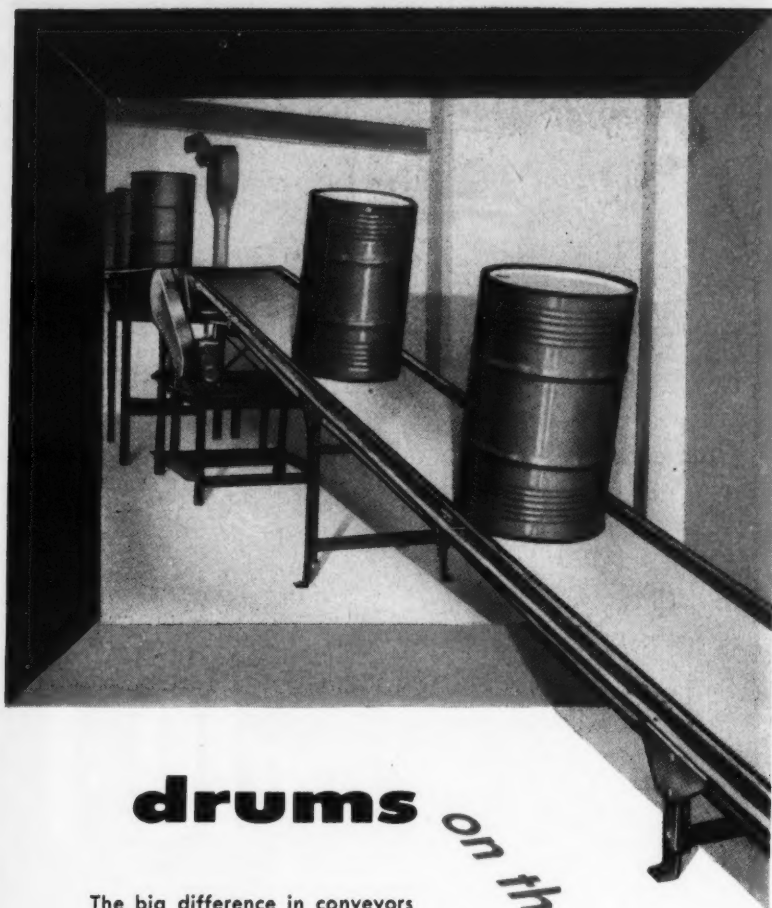
INCORPORATED



2423-31 SPRING GROVE AVE.
CINCINNATI 14, OHIO

When inquiring check CP 1712 on handy form, pgs. 2-3

When inquiring check CP 1708 on handy form, pgs. 2-3



drums

on their way...

The big difference in conveyors for special services lies in their suitability for the job.

Alvey builds Drum Handling Conveyors especially suited for transporting between departments, filling and weighing, for storage magazines; reciprocators and lifts, too.

Write Alvey today.

ALVEY



CONVEYOR MFG. CO.

9308 Olive St. Road
St. Louis 24, Mo.

When inquiring check CP 1713 on handy form, pgs. 2-3

MATERIAL HANDLING

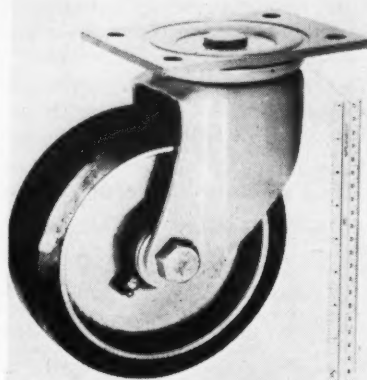
Three types of casters add to mobility of trucks . . .

designed for heavy duty in all types of industrial service

Uses: For long-life mobility of all types of hand trucks or mobile containers.

Features: Series "99" line is made for extra-tough service, all-purpose general duty, or for light duty.

Description: Super "99" is made of extra-heavy gage steel, 1/4" thick top plate, with heavy king pin and adjustable bearing assembly. In 6 and 8" sizes, it is intended for the



Provided in three classifications for all types of service

toughest service. Heavy "99" is an all-purpose, general-duty caster with wheels for every type floor and all operating conditions. In sizes 3 to 8". The Light "99" is recommended for soft rubber tread wheels for store, institutional, and light-duty trucks and comes in 5, 6, and 8" sizes. All of the "99" series are of the double-ball race, swivel steel type.

(Product of The Bassick Company, Dept. CP, Bridgeport 2, Conn. . . . or for more information check CP 1714 on handy form, pages 2 & 3.)

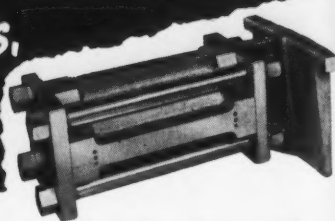
Explains versatility of table conveyor

Photos, application sketches, and complete specifications for manufacturer's horizontal belt conveyor are given in 4-page, 2-color bulletin.

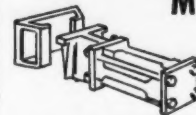
Applications illustrated in the bulletin of the conveyor include such uses as: sorting, order packing, checking, testing, inspecting, and similar jobs. Bulletin also features made-to-order service of custom-built conveyors.

Bul TV-52 is issued by Dept. TV, The Rapids-Standard Company, Inc.,

**FAST,
EFFORTLESS,
LOW COST**



Material Unloading with a CANNON RRHC vibrator



Save valuable man hours, speed material unloading with a Cannon RRHC vibrator. Specifically designed for use on covered railroad hopper cars this "Quiet-Type" pneumatic vibrator quickly loosens packed materials and keeps them flowing freely. Convenient male bracket fits snugly into female bracket standard on most covered railroad hopper cars. Female brackets can be supplied for horizontal mounting on dump trucks, hoppers, bins, chutes, flasks and mining cars. Weighing only 75 lbs. the unit is readily portable, can easily be installed or removed. Ideal for use with fine coal, sand, chemicals, cement and concrete. Ideal as a general utility unit.

A-5157

CANNON VIBRATOR COMPANY
1111 POWER AVE., CLEVELAND 14, OHIO

When inquiring check CP 1715 on handy form, pgs. 2-3

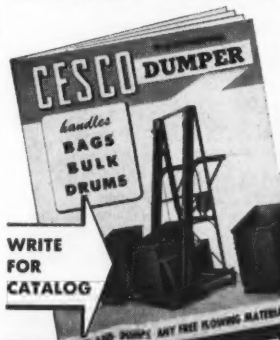
Save time! Prevent accidents!

LIFT AND DUMP
MECHANICALLY

**BAGS
BARRELS
DRUMS
BOXES**

REDUCE HANDLING COSTS with a CESCO Dumper. It handles up to 100 loads per hour; has a lifting cap. ranging from 100 to 1500 lbs. Both single- and multi-purpose portable models are built in standard dumping heights from 5 to 12 ft. Stationary models up to 16 ft. dumping heights. Push button controlled. Write for catalog.

COLSON EQUIPMENT & SUPPLY CO.
1317 Willow Street • Los Angeles 13, California



WRITE FOR CATALOG

CESCO SKIP HOIST DUMPER

When inquiring check CP 1716 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Dept. CP, 342 Rapistan Bldg., Grand Rapids 2, Mich. When inquiring specify CP 1719 on handy form, pages 2 and 3.

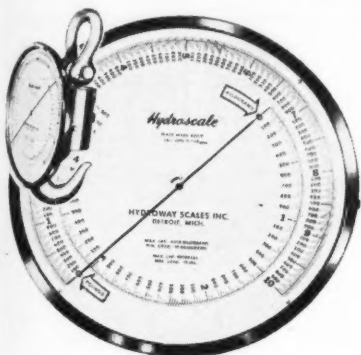
Weighs and translates material into lbs and kgs . . .

needs no conversion charts when metric system is involved

Uses: For fast, accurate weighing of materials and products for export, import, and processing.

Features: Hydraulic crane scale indicates weights in both pounds and kilograms simultaneously, thereby eliminating confusion.

Description: "Hydroscale" is available with 24 and 30" diam dials and in 5, 10, and 20 ton capacities.



Shows both lbs and kgs

Larger capacities can be provided. Tare adjustment for new load indications and optional tilt-face dial for high level reading are provided.

(Product of Hydroway Scales, Inc., Dept. CP, 20624 West Eight-Mile Rd., Detroit 19, Mich. . . . or for more information check CP 1720 on handy form, pages 2 and 3.)

Brochure tells story of conveyor lines

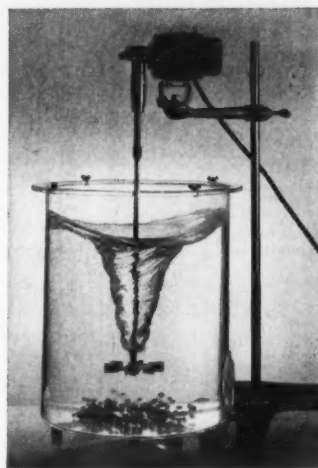
Brochure containing literature describing all the manufacturer's conveying equipment, supplemented with photographic story of the facilities and personnel of the company, incorporates latest catalogs and gives manufacturer's details, specifications, drawings, photos of installations, and lists of users.

Bound with red plastic comb binding and measuring 8 1/2 x 11", each piece of literature has its own basic color.

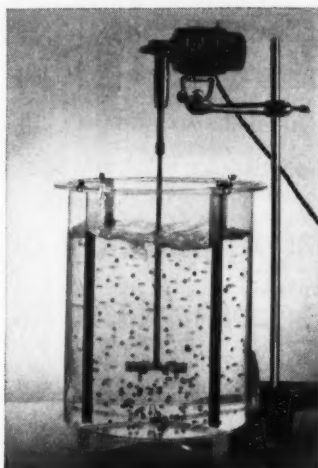
Brochure is issued upon letterhead request to Island Equipment Corp., Dept. CP, 27-01 Bridge Plaza North, Long Island City 1, N. Y.

For more information on product at right, specify CP 1721 . . . see information request blank between pages 2-3.

How to get better results with



CHECK THE AGITATOR. Does it draw a vortex like this? If so, solid particles may be heavily concentrated in tank bottom. This can mean time loss and power waste. It can cause overloading or damage to filters, pumps, other connected units in the system.



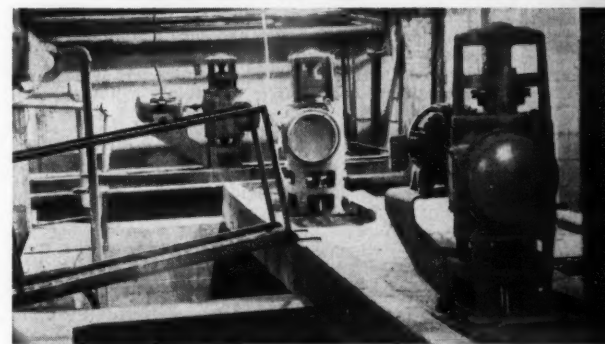
VORTEX IS ELIMINATED by properly baffling the tank, and by choosing an impeller that will efficiently lift particles of given size, density and settling rate. Result: you get the kind of suspension you want, with less horsepower, in minimum time.

Solids Suspensions

Mixco can help you get better results on any fluid agitation job—often in much less time and with less installed horsepower than you are now using, or plan to use.

In fluid agitation, remember these two facts:

- Mixco engineers give you accurate prediction of results.
- LIGHTNIN MIXERS are guaranteed to do the job right.



THREE 10-HP LIGHTNIN MIXERS agitating a slurry in large compartmented storage tanks.

Lightnin Mixers

for every fluid agitation job

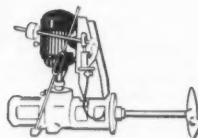
MIXCO

fluid agitation specialists

EVERY LIGHTNIN MIXER IS GUARANTEED TO DO THE JOB RIGHT



PORTABLE
1/2 to 3 HP



SIDE ENTERING
1 to 50 HP



TOP ENTERING
1 to 500 HP

MIXING EQUIPMENT Co., Inc.

185 Mt. Read Blvd., Rochester 11, N. Y.

In Canada: William & J. G. Greey, Ltd., Toronto

Please send me the bulletins checked:

- | | |
|---|---|
| <input type="checkbox"/> B-102 Top Entering Mixers (turbine and paddle types) | <input type="checkbox"/> B-100 Condensed Catalog (complete line) |
| <input type="checkbox"/> B-78 Top Entering Mixers (propeller type) | <input type="checkbox"/> B-75 Portable Mixers (electric and air driven) |
| <input type="checkbox"/> B-76 Side Entering Mixers | <input type="checkbox"/> DH-50 Laboratory Mixers |

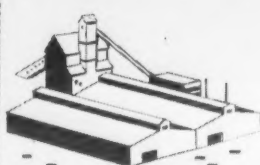
Name _____

Title _____

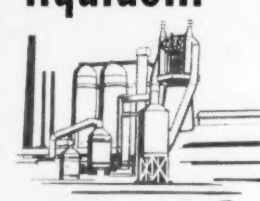
Company _____

Address _____

City _____ Zone _____ State _____



plant
.....
liquids...



Your plant production can never be any better than the liquid handling equipment that controls it. A pump breakdown can cripple an entire plant. That's why WEINMAN Centrifugals are in such demand today.

These pumps are designed **right** for your special requirements. Their long-suited is their complete dependability. Once installed, they can be forgotten.

The man to talk to is your WEINMAN representative. He knows your industry and how Centrifugal Pumps can help with your liquid handling. He is backed up by an organization with only one thing on its mind—building industry's most efficient centrifugal pumps.

Want pump help? Just write, wire or phone.

Here is one of many WEINMAN pumps that handle liquids carrying solids. It's the Type U Non Clog Pump.



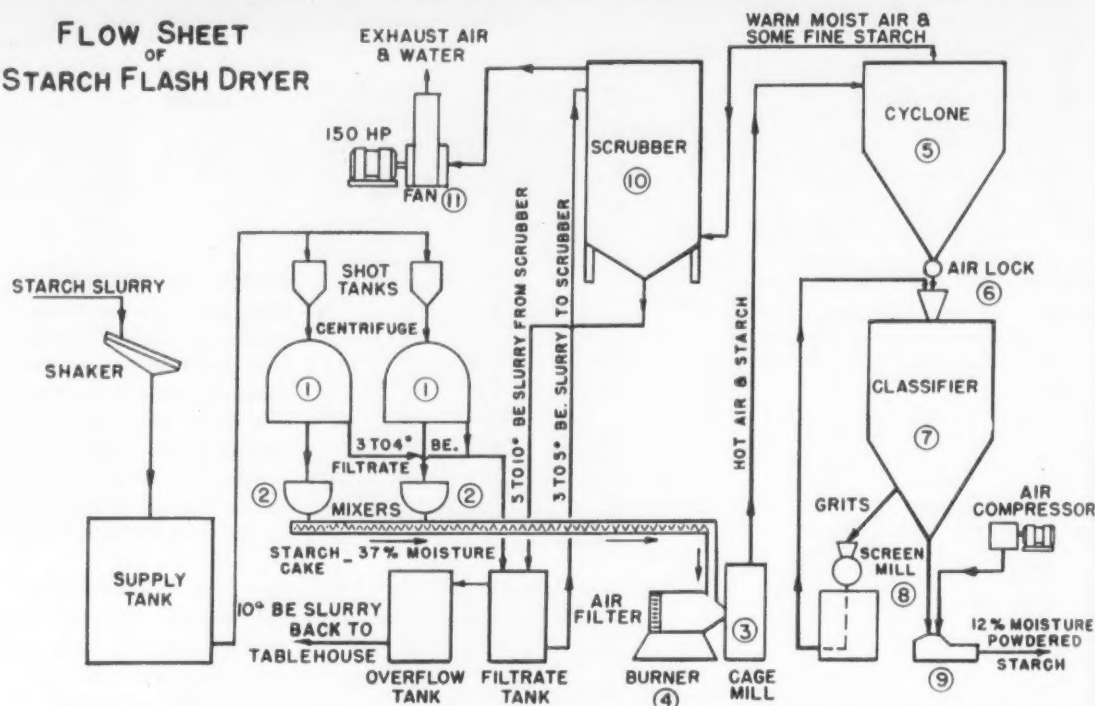
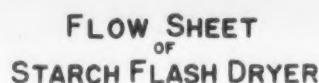
Here is the WEIN-
MAN two stage
Split-Case
Pump for
high head
service.

Representatives in principal cities

Built by Centrifugal Specialists

The WEINMAN Pump Mfg. Co.

294 SPRUCE STREET • COLUMBUS 8 • OHIO



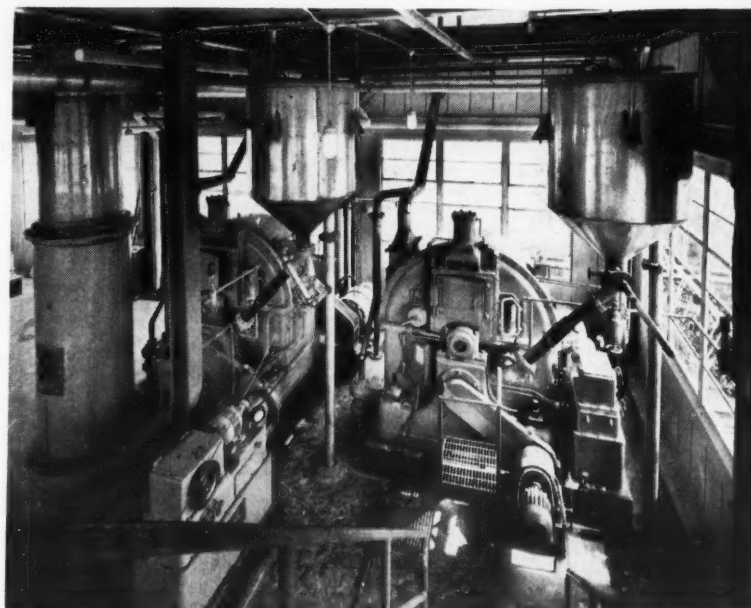
First Commercial Application of Flash Drying to Corn Starch

Increases concern's starch drying capacity 50% and improves quality

FEATURING almost entirely stainless steel construction, a new flash drying unit was recently unveiled by the American Maize-Products Co., Roby, Ind. Dryer can handle approximately 300,000 lb of corn starch per day — an increase in Maize's drying capacity of more than 50%. At least 2,100,000 bushels of corn, a little over 1/7 of company's total annual grind, will be needed to supply this one unit on an annual basis.

Maize, fourth largest in corn refining industry, constructed a pilot scale unit in spring of 1950 for evaluation purposes. Data collected indicated that efficiency of operation as well as capital and operating costs would be lower than that for any other type of dryer being used by corn refining industry. Also, results showed an improvement in quality over that produced by the old kiln method of drying.

Heart of the process is a cage mill which agitates the wet corn starch and disperses it into the hot air stream where it gives up roughly 20% of its moisture in an instant.

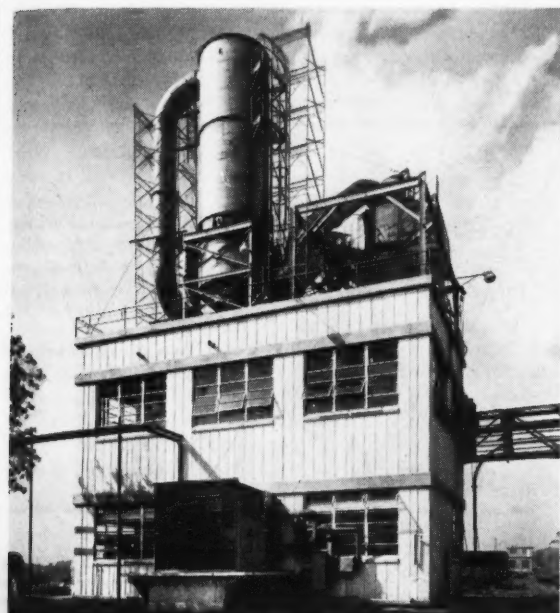


At extreme left of photo is the 36" duct leading to the cyclone; then come the two centrifuges with their supply tanks overhead and to the right

Entire operation (see flow sheet) begins with starch being pumped from table house at a concentration of 23°Be (about 60% moisture) to a shaker. Starch slurry passes through nylon cloth of shakers, which removes extraneous materials, to a 3000 gal supply tank.

From the latter, slurry is pumped to shot tanks (on second floor of building shown) which supply two horizontal, basket-type Baker Perkins centrifuges. A charge is entered into the centrifuges by an hydraulically operated valve on bottom of shot tanks. Subsequent operation of centrifuges, which work on a 7 to 8 min cycle, is similarly controlled. Centrifuge basket spins at about 850 rpm and dewater slurry to form a cake containing 32-40% moisture. When cake has spun 3 or 4 min, it is scraped off and drops into a ribbon mixer (fig 2) where the moisture content of starch from the two centrifuges is equalized.

A screw conveyor carries cake to the cage mill (fig 3) where the starch meets the continuous blast of hot air



Visible in shot of building which houses flash dryer are: center foreground—burner unit and intake; center of roof—scrubber; right end of roof—cyclone; right bottom of building and ascending—air conveyor duct

coming from a Maxon Premix burner. This unit employs propane as a heat source, which is stored in a tank 63' long with a diameter of 110" and capacity of 30,000 gal. Air is suctioned across burner at 28,000 cfm by a 150 hp motor powered fan. Temperature in area of contact is about 600°F.

Starch, hot air and moisture are conveyed up a 36" insulated duct (see accompanying photograph) to a cyclone (fig 5). Starch falls to bottom of cyclone, passes through an air lock to a small hopper and then enters classifier (fig 7). Grits are separated and sent to a screen hammer mill (fig 8). Powder from the mill is recycled back to classifier; finished powder starch is blown to dextrin and starch bagging departments.

Moist air — now about 100°F — plus some fine starch from cyclone are conducted to scrubber. Starch slurry recovered here in addition to that from the centrifuges is pumped back to table house for reprocessing.

Moisture of the product is controlled by cyclone exit tem-

(Continued on page 65)

take a
CLOSER LOOK

at

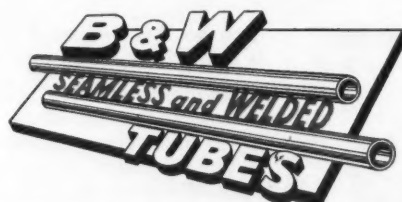
OXIDATION



Oxidation is one of the simplest yet most frequently-encountered forms of corrosion affecting the service life of steel tubes in high-temperature applications. When tubes are exposed to elevated temperatures for extended periods of time, scale will form of sufficient thickness to flake off, causing progressive loss of metal. Resistance to oxidation, or scaling, is therefore an important consideration in determining the suitability of tubes for severe temperature conditions.

Chromium is the most effective alloying element for providing oxidation resistance in steel tubes. It forms a tight surface layer of chrome-rich oxide which retards inward oxygen diffusion and protects the underlying metal from attack. The amount of chromium required for utmost freedom from excessive scaling is generally in proportion to the temperature conditions to which the tubes will be subjected. Under certain conditions, additional oxidation resistance may be provided by adding small amounts of silicon, titanium, or aluminum.

Tubes of intermediate and stainless B&W CROLOYs are effectively meeting all requirements for oxidation resistance at elevated temperatures in petroleum and chemical processing equipment. Each of these Croloys will provide optimum service life within a definite range of operating conditions. Whenever you have a problem involving oxidation resistance, consult Mr. Tubes—your B&W Tube Representative, and get the benefit of the dependable technical service he represents.

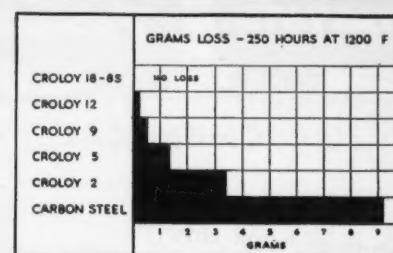


THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION

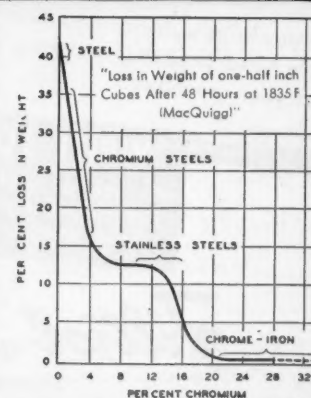
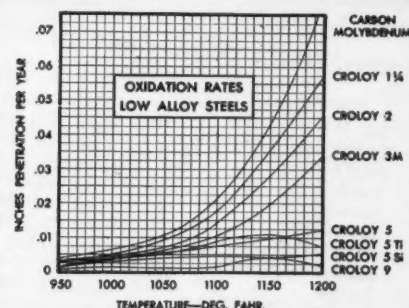
General Offices & Plants

Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing

Sales Offices: Beaver Falls, Pa. • Boston 16, Mass. • Chicago 3, Ill.
Cleveland 14, Ohio • Denver 1, Colo. • Detroit 26, Mich. • Houston 2, Texas
Los Angeles 17, Calif. • New York 16, N. Y. • Philadelphia 2, Pa.
St. Louis 1, Mo. • San Francisco 3, Calif. • Syracuse 2, N. Y.
Toronto, Ontario • Tulsa 3, Okla.



COMPARATIVE OXIDATION RESISTANCE AT 1200 F



When inquiring check CP 1723 on handy form, pgs. 2-3



FOR **CHEMICAL PROCESSES**



FOR **CHEMICAL PROCESSES**



FOR **CHEMICAL PROCESSES**

Carloads of Filtrol catalysts are being used daily. Typical applications are—polymerization, esterification, oxidation, condensation, isomerization, alkylation, dehydration, hydrogenation, cracking and other chemical reactions.

PROPERTIES OBTAINABLE IN FILTROL CATALYSTS

Property	Range
Bulk Density	from 25 lbs. to 80 lbs. /cu. ft.
Particle Density	from 1.0 to 1.8 g. /ml.
Pellet Sizes	from 1/16 inch to 1 inch
Granule Sizes	from 4 to 60 mesh
Powder Sizes	from 10% to 50% 0-20 micron
Surface Area	from 50 to 500 sq. meters per gram
Water Content	from 4% to 22%
Attrition Resistance	from medium to very high
Porosity	from 0.3 to 0.6 pore volume ml. /gm
Promoters Impregnation	from non-impregnated to highly impregnated
Activity	from specific high or low to non-specific high or low

If you have a chemical problem, be sure to evaluate Filtrol products—complete technical service at your command.

WRITE TODAY

for your copy of the new Filtrol pamphlet, which may suggest many uses to you.



Filtrol CORPORATION

Chemical Division

General Offices: 727 West Seventh Street, Los Angeles 17, California

*T.M. Reg. U. S. Pat. Off.

The World's Largest Manufacturers of Catalysts, Adsorbents, Desiccants and Other Chemically Treated Materials

When inquiring check CP 1724 on handy form, pgs. 2-3

IDEAS

Portable as slide rule, calculator does more math . . .

eight-ounce device figures to 5 decimals, totals 99 billion

Precision-made by Swiss watchmakers, portable calculator (weighs 8 oz) will add, subtract, multiply, divide, figure



Calculates with speed and accuracy of larger machines

square roots, factors, cubes, and percentages with speed and accuracy of large desk calculators. Operates as easily as slide rule. Device carries to five decimals; totals to 99 billion.

Figures can be checked and re-checked on three sets of dials. Comes in rubber-lined metal case.

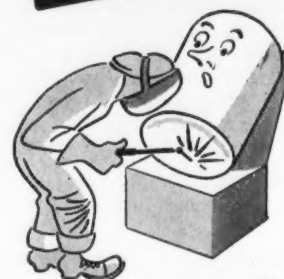
"Curta" hand calculators are manufactured by Curta Calculator Co., Dept. CP, 5543 S. Ashland Ave., Chicago, Ill. . . or for more information check CP 1725 on handy form, pages 2 & 3.)

Isotope Instrumentation is briefly explained

Seven-page pamphlet clearly describes instrumentation for isotope utilization in the laboratory. Properties of alpha and beta particles, and gamma rays are outlined with various methods for their detection. Several general suggestions are offered for those who are contemplating using radiation detection instrumentation for the first time.

"Instrumentation for Isotope Utilization" is issued by Nuclear Instrument & Chemical Corporation, Dept. CP, 223-233 W. Erie St., Chicago 10, Ill. When inquiring specify CP 1726 on handy form, pages 2 and 3.

FABRICATING YOUR STAINLESS STEEL EQUIPMENT *is no cinch!*



"Not too hot, please"

Not too much heat—not too little in the welding arc! Stainless steel is tricky to fabricate. Our experienced welders know that improper welding temperature reduces corrosion resistance at the seams. Blickman-controlled welding procedures give you sound, corrosion resistant welds.



"Shine 'em up"

Get just the right finish for your application. Working exclusively with stainless steel, we have ALL the tools to produce right in our own plant a finish which assures quicker, more thorough cleaning of your vessel.



"Inspect my seams again, pal"

Double check the inspection procedures of your fabricator. Knowing that the properties of the alloy can be impaired during fabrication, we have established rigid shop procedures and inspection methods as an extra guarantee of soundly built vessels.

When you need stainless steel equipment, call in a fabricator who knows how to handle this alloy in his shop.

S. BLICKMAN, INC. • 704 GREGORY AVE., WEEHAUKEN, N. J.

S. BLICKMAN, INC.
Guards Alloys in Fabrication

SEND FOR THIS VALUABLE BOOK
A request on your letterhead will bring our guide, "What to Look For When You Specify Stainless Steel for Your Processing Equipment."



CORROSION RESISTANT PROCESSING EQUIPMENT



When inquiring check CP 1727 on handy form, pgs. 2-3

Demineralized water suitable as make-up for high-pressure turbines, boilers . . .

power plant uses 40% make-up, equal to 1250 gpm; silica held at 0-0.1 ppm as SiO_2

For more than a year the Philadelphia Electric Company has been using ion exchange in demineralizing and removing silica from make-up water for high-pressure boilers and turbines. The boilers are each rated at 600,000 lb/hr of steam at 12 psig and 900°F. The make-up is high, constituting more than 40% of the total evaporation. Demineralized city water is fed to the turbines and boilers at 1250 gpm.

Essential components of the system consist of four 11' diam by 14' high hydrogen cation exchange units, two 10' diam by 16' high degasifiers for partial removal of carbon dioxide, and four 11' diam by 12' high strongly basic anion exchange units for removal of all acids including silicic acid. Incoming city water is stored in a 30,000-gal concrete compartment under the operating floor. Demineralized water goes to a one-million-gal, lined-steel tank. The cation exchange units contain 6' beds of phenolic exchanger, and are regenerated with sulfuric acid. Each anion exchange unit holds a 4.5' bed of the highly basic anion exchanger, and is regenerated with caustic soda. Initial base caustic soda dosage was set at 5 lb/cu ft, with capacity of 16.0 kgr/cu ft of divalent anions, but there was the possibility of reducing the dosage down to 2.6 to 3.5 lb/cu ft in the future.

On the average water, the period between regenerations of a cation unit is 22 hours, and it is between 35 and 40 hours for an anion unit. This means that when operating at the design flow rate, a cation unit comes up for regeneration about once every 5 to 6 hours and an anion unit every 8 to 10 hours.

Raw and Effluent Water Analyses
(as ppm CaCO_3 unless otherwise stated)

	City Water (average)	After Cation Unit and Degasifier	After Anion Unit
Total cations	144	133	0-1.0
Total anions	144	133	0-1.0
Total hardness	125	0-0.5	0-0.5
Free CO_2 , ppm CO_2	40	3-5	0
Silica, ppm SiO_2	11.3	13	0-0.1
pH	7.4	2.5	8.3
Micromhos cond.	—	—	2.0

(Information courtesy of Graver Water Conditioning Co., Dept. CP, 216 W. 14th St., New York 11, N. Y.)

Flash Drying Corn Starch

(Continued from page 63)

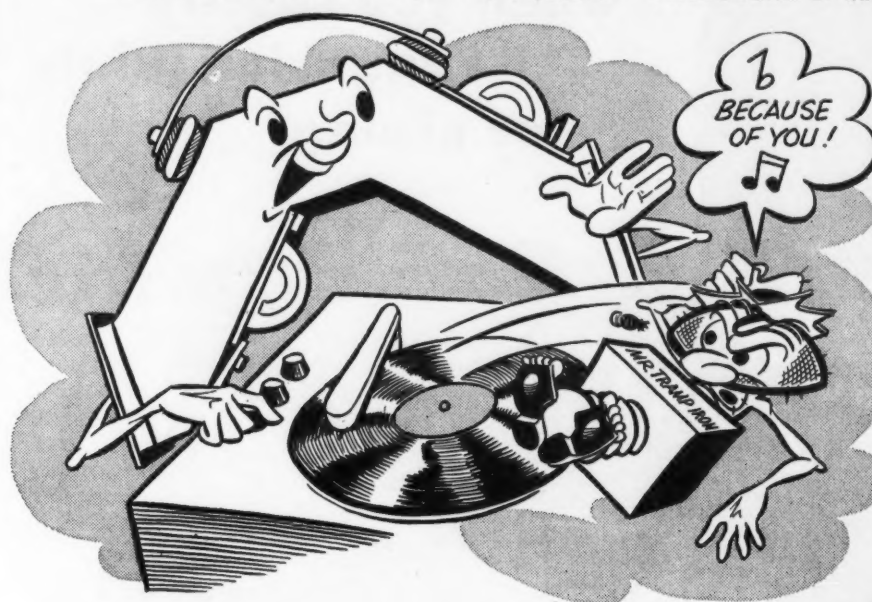
peratures. Any changes that are detected — by a pencil-type thermocouple — and recorded are transmitted to an air motor valve system which regulates the amount of gas fed to burner.

Flash drying unit is housed in a type of building material known as perlite panels. Precast in 20' lengths, 16" wide and 6" thick, the material is an insulating aggregate made of volcanic glass combined with Portland cement and reinforced with welded steel mesh. Sections are estimated to have insulating properties of a 15" brick wall.

(Information from American Maize-Products Co., Dept. CP, Roby, Ind.)



ERIEZ MANUFACTURING CO., ERIE, PA., U.S.A. • PRODUCERS OF MAGNETIC SEPARATORS



R.C.A. VICTOR uses ERIEZ non-electric ATOMagnet Hump Separators in gravity flow lines to remove fine tramp iron from plastic powders used to make records. This avoids damage to dies and needles...eliminates down-time...saves money. The Hump can also be used in pneumatic or liquid flow lines.



SAND HANDLING EQUIPMENT

at National Erie Corp. foundry is protected from dangerous tramp iron by an ERIEZ non-electric ATOMagnet Pulley. Made and installed in 4 days, this pulley replaced a burned-out electromagnet...improved performance...kept production rolling.



WHY MAGNETIC PROTECTION IS IMPORTANT IN CHEMICAL PROCESSING!

This is one of the subjects treated in a new bulletin offered by ERIEZ Manufacturing Company. It is complete with descriptions and installation drawings of all ERIEZ magnetic equipment for the chemical industry. If you are troubled with tramp iron, this brochure will tell you how to catch it and save money. Mail coupon today.



Manufacturing Company, 201 State Street, Erie, Pa.

My Contamination or Separation Problem is: _____

Please Send Me the FREE Catalog #15

Name _____ Title _____

Company Name _____

Street _____

City _____ Zone _____ State _____ 52-D

When inquiring check CP 1728 on handy form, pgs. 2-3

Now, say

FLEXON

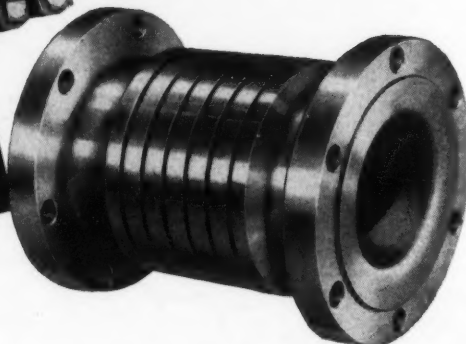
when you specify
expansion joints
for piping



Free-flexing units in stainless steel or copper for pressures to 30 psi; sizes to 48" I.D.



Controlled-flexing units in stainless steel or copper for pressures to 300 psi; sizes to 48" I.D.



Integral ring units in stainless steel for pressures to 5500 psi; temperatures to 1600° F; sizes to 6" I.D.

WITH the change of our corporate name from Chicago Metal Hose Corporation to FLEXONICS Corporation, CMH Expansion Joints are now known as FLEXON Expansion Joints. Just as the corporate name was changed to better describe the company's manufacturing activities, the name FLEXON should allow easier identification of these units.

Wherever motion is encountered in piping,

the problem can be solved with FLEXON Expansion Joints. These dependable units are easily installed in new or existing lines and require only slightly more space than straight pipe. They cannot leak and require no maintenance.

Write for our new Expansion Joint "Design Guide". And remember, when you specify expansion joints, you now say, "FLEXON".

Flexonics

Corporation

EXPANSION JOINT DIVISION

1319 S. THIRD AVENUE • MAYWOOD, ILLINOIS

FORMERLY CHICAGO METAL HOSE CORPORATION

Flexon identifies products of Flexonics Corporation that have served industry for over 50 years.



Manufacturers of Convuluted and Corrugated Flexible Metal Hose in a Variety of Metals • Expansion Joints for Piping Systems • Stainless Steel and Brass Bellows • Flexible Metal Conduit and Armor • Assemblies of These Components
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

When inquiring check CP 1729 on handy form, pgs. 2-3

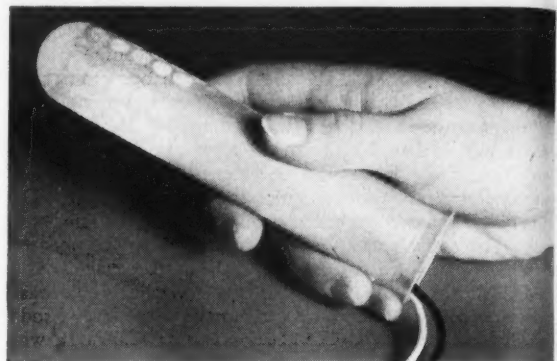
IDEAS

Use translucent nylon tube as lamp housing . . .

it is one and one-half inches in diameter and has a wall thickness of forty thousandths

Being used as a lamp housing in an automatic clothes washer is a translucent molded nylon tube. Mounted under the top, the lamp illuminates the interior of the machine and aids in handling clothes.

Housing has an exceptionally long draw—measuring six inches in length. It is one and one-half inches in diameter and has a wall thickness of forty thousandths. The nylon



6 1/2" long nylon lamp housing

has proved resistive to the heat (up to 250° F) generated by the 15 watt bulb inside the housing and to the moisture conditions of the application. (Courtesy of General Electric Co., Dept. CP, Pittsfield, Mass.)

Explains operation, features of unique pH meter

Printed in yellow and black, this four-page bulletin offers general information about the Compax pH meter.

Photographs and description show how the light can be used to estimate pH within 0.02 units. Bulletin also points out there is only one control knob to this particular instrument.

Performance is discussed in terms of precision, convenience, portability, ruggedness, and simplicity. Full details of the equipment and accessories are provided. Bul B-225 is issued by Coleman Instruments, Inc., Dept. CP, 318 Madison St., Maywood, Ill. When inquiring specify CP 1730 on handy form, pages 2 and 3.

Lenses get the pitch — dispensed with a gear pump . . .

dispensing unit pumps out controlled amounts of pitch for holding lenses in place during grinding. Revere Camera Company of Chicago is using a gear pump to dispense pitch for blocking lenses to be ground and polished. Using the pumping unit, an operator fills various sized button molds with the special compound. Before the pitch cools to its solidifying temperature, pre-heated lenses are placed in the top of the molds. Then, when the compound has cooled and the lenses are firmly attached, the lenses and their pitch buttons are manually ejected and cemented to iron tools.

Pump adds to efficiency by ejecting pitch at a rate of 88



Operator fills button molds with melted pitch

times a minute. And even at that speed the amount of pitch delivered is consistent ($\pm 3\%$). Discharge rate can also be changed without tools in less than two seconds, for the heart of the pump is a single revolution clutch controlled by an insulated clutch lever (see photo).

Insulated tank is heated and thermostatically controlled. Fixed-temperature thermostat in the pump housing prevents overheating.

(Pitch dispensing unit was supplied by Edward E. Robinson, Inc., Dept. CP, 95 Park Ave., Nutley 10, N. J. . . . or for more information check CP 1731 on handy form, pages 2 and 3.)

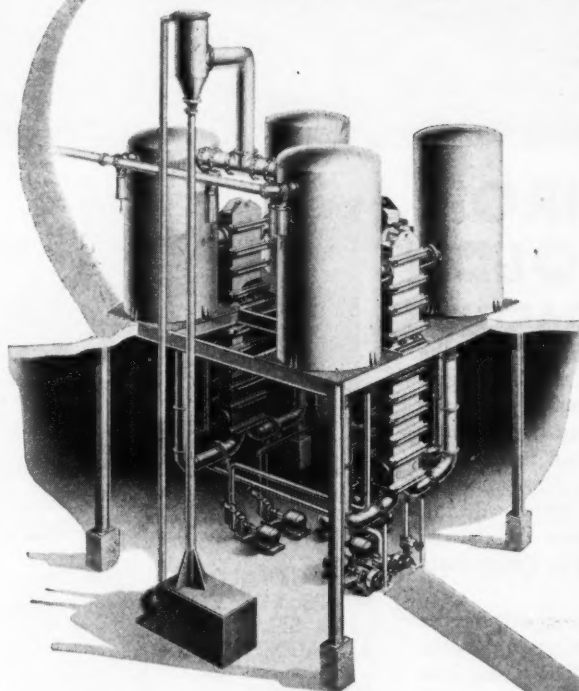
Logical thinking is emphasized for writing technical info

Realizing existing differences (interests, knowledge, and language) between scientists and average businessmen, and the difficulties often encountered in disseminating technical information, the author of this 116-page book attempts to bridge the gap with a review of the fundamentals principles of communication.

The book is not an outline for proper report writing insofar as grammar, spelling, punctuation are concerned, but is written from the viewpoint of the business manager, stressing the importance of thinking and logic which must underlie communication of technical information. Treatment of the subject deals with inter-organization memos, progress statements, methods of oral presentation in conferences.

To obtain "Communication of Technical Information" remit \$5 direct to Chemonomics, Inc., Department CP, 400 Madison Avenue, New York 17, New York. When inquiring specify CP 1732 on handy form, pages 2 and 3.

Completely self-cleaning during operation No down time! No scale removal costs!



Conkey 4-Body Triple Effect Flat Plate Heating Surface Evaporator

**Conkey Flat Plate
Evaporators with
Rosenblad
Switching
System***

Take a leaf from the flow sheets of another industry. For years evaporation of spent sulphite pulp cooking liquors in sulphite pulp manufacture was considered highly impractical because a gypsum coating developed on heating surfaces. But today—it can be a *continuous, full capacity self-cleaning operation* through use of Conkey Evaporators and Rosenblad Channel Switching System.

The advantages of the Rosenblad Channel Switching System have been thoroughly proven both in this country and abroad. Heating surfaces, interconnecting pipe and pump systems are *completely cleaned during normal operation!* It's especially effective wherever lime salts scale evaporators.

Conkey equipment adapts itself well to channel switching for self-cleaning operation while providing all the other advantages of multiple effect evaporation: forced circulation . . . falling film . . . recompression . . . thermal compression . . . high vacuum and other specialized benefits where required.

*Patents Applied For

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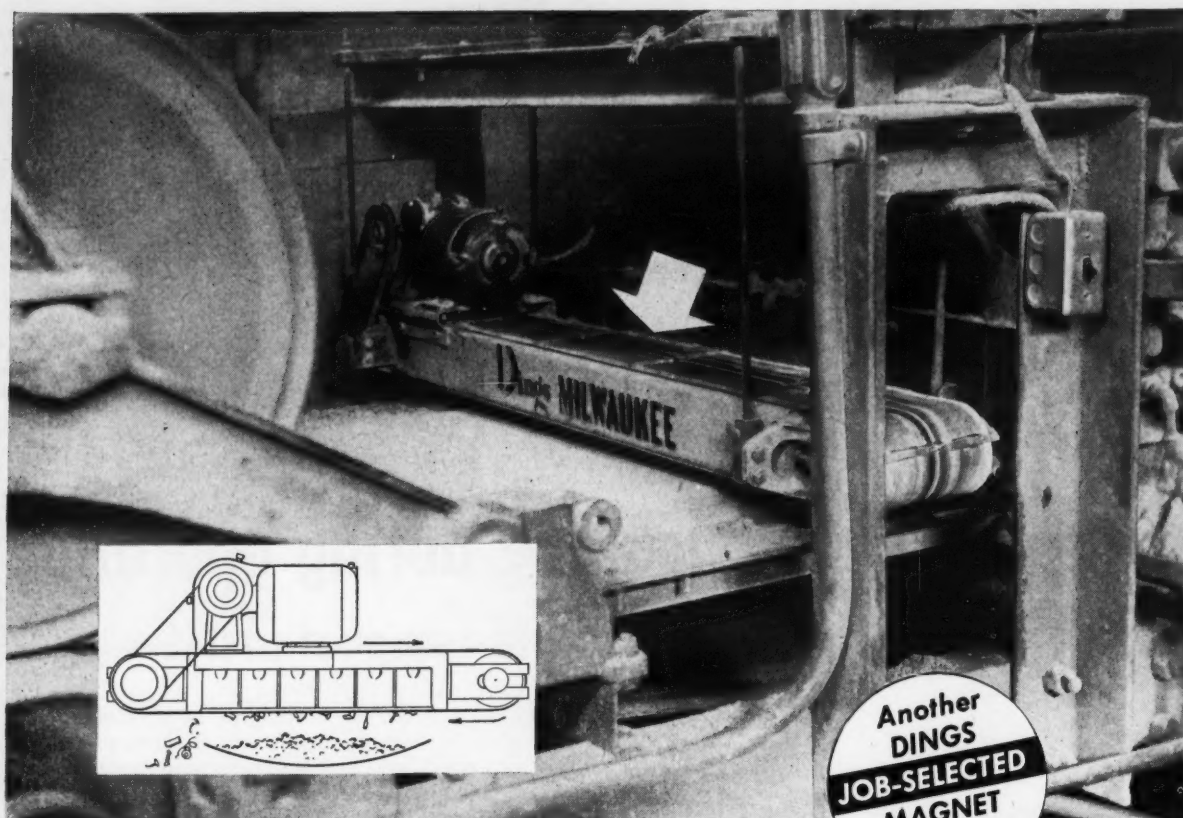
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OFFICES IN ALL PRINCIPAL CITIES



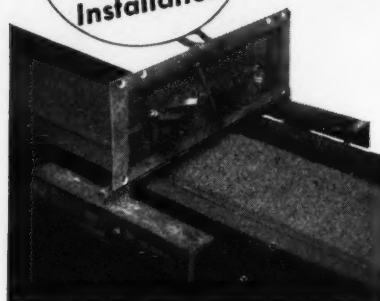
GET THE FULL DETAILS. Write today for new bulletin. See how a Conkey Evaporator with Rosenblad Switching System can eliminate down time, eliminate scale removal costs and keep a constant flow sheet for you.

Other General American Equipment: Turbo-Mixers, Filters, Dewaterers, Dryers, Towers, Tanks, Bins, Pressure Vessels.

When inquiring check CP 1733 on handy form, pgs. 2-3



Another
DINGS
JOB-SELECTED
MAGNET
Installation



THE PERMA-PLATE (shown here without self-cleaning attachment) is non-electric, permanently magnetic. This magnet is particularly effective where the burden depth does not exceed 3".

THIS CATALOG HELPS YOU TO "JOB SELECT" A MAGNET

Is the material you want de-ironed a solid . . . semi-solid . . . liquid? Is it carried in chutes . . . ducts . . . conveyor belts? Catalog 5000-B lists Dings complete line by application, describes all Dings magnets from the low cost, non-electric "Perma" Plate magnet to the most powerful magnetic separators known. Send for it today.



ASBESTOS MINUS IRON EQUALS SALES GOLD

DINGS MAGNETS DO THE SUBTRACTING

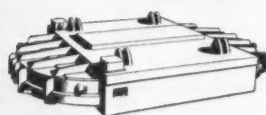
HOMEOWNERS like the superior quality of asbestos shingles but if the shingles don't look like wood, they won't buy, says one of the biggest manufacturers of asbestos building materials in the business. So the shingles are passed through engraving rolls to give them the textured appearance of wood. A problem raised by this process and solved by a Dings self-cleaning non-electric Perma-Plate magnet (big illustration) is TRAMP IRON—nuts, bolts, wires, etc. which get in the asbestos during previous processing. This iron would wreck the rolls, alter the pattern and eventually cause rust spots in the installed material. The Perma-Plate gets it all out—automatically.

WHY was the Perma-Plate selected for this job over all other types and styles of magnets in the Dings line? *The specific application dictated its choice.* The magnet was "job selected." Whatever YOUR tramp iron problem, buy a Dings job selected magnet and KNOW it will be successful.

DINGS MAGNETIC SEPARATOR COMPANY

4731 W. Electric Ave., Milwaukee 46, Wis.

DINGS MAGNETS



Rectangular



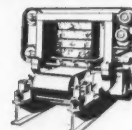
High Intensity
Induced Roll



Non-Electric
and Electric Pulleys



Non-Electric
Drums



High Intensity
Type EBK Crossbelt

When inquiring check CP 1734 on handy form, pgs. 2-3

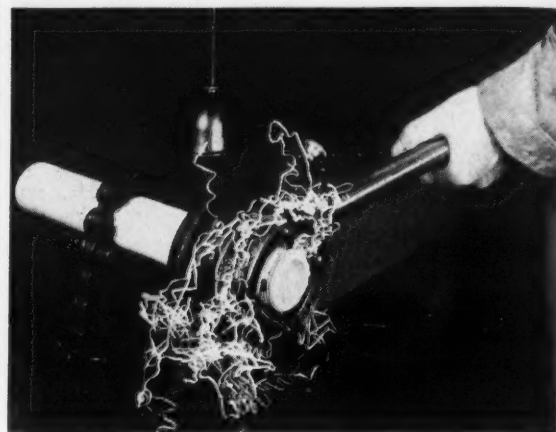
IDEAS

Piping made of polyvinyl chloride can stand over 2000 psi for 1/4" thickness . . .

unplasticized material shows high resistance to chemicals and is easily fabricated

Piping made of rigid unplasticized Geon 404 (B. F. Goodrich Company brand of polyvinyl chloride) has been proven successful of sustaining more than 2000 psi against walls of 1/4" thick. Material has a tensile strength of 8600 psi, and a specific gravity of 1.35-1.45, and is reported to have outstanding resistance to organic and inorganic acids.

Material can be sawed, drilled, formed, embossed, turned, threaded, welded, ground, milled, and rolled. Piping made from the material comes in 1/2 to 2" stock with walls of



1/4" thickness. Piping can be threaded on standard pipe dies and may be equipped with acid resisting plastic tees, 90° and 45° elbows, companion flanges, blind flanges, couplings, reducing couplings, and caps.

(Piping is made by Van Dorn Iron Works Co., Dept. CP, 2691 E. 79th St., Cleveland 4, Ohio . . . or for more information check CP 1734A on handy form, pages 2 & 3.)

Tells story and application of copyflex process

Briefly described and illustrated, the copyflex process is presented in 24-pages. Benefits of duplicating printed and drawn material by this method are summarized in the two color booklet. Booklet A-2008 is distributed by Charles Bruning Company Inc., Dept. CP, 125 North St., Teterboro, N. J. When inquiring specify CP 1735B on handy form, pages 2 and 3.

Infrared spectroscopy course to last two weeks . . .

summer session at MIT will run from June 16 to 27 MIT's Spectroscopy Laboratory and Chemistry Department jointly offer two, integrated one-week courses in "Techniques of Infrared Spectroscopy" and "Applications of Infrared Spectroscopy." These courses will be under the direction of Dr. Richard C. Lord, Director of the Spectroscopy Laboratory at MIT, and Dr. Foil A. Miller, in charge of the Spectroscopy Laboratory at Mellon Institute of Industrial Research.

"Techniques" course (June 16-20) will include morning lectures on theory of infrared spectra, survey of instruments, and discussion of measuring techniques. There will

CHEMICAL PROCESSING

IDEAS

also be afternoon laboratory sessions supervised by MIT and manufacturer's personnel.

"Applications" course (June 23-27) will cover molecular absorption theory, interpretation of spectra, and relations between structure and spectra. Special fields are to be examined by "guest experts" on hydrocarbons, high polymers, antibiotics, and others.

All facilities of the institute will be open to members of these courses. Living accommodations will be available and reservations can be arranged if requested. Since enrollment will be limited, early application is advised.

Those interested should contact Dr. Ernest H. Huntress, Director of the Summer Session, Room 3-107, Massachusetts Institute of Technology, Cambridge 39, Mass.

Green-tinted glass reduces glare, absorbs heat and harmful rays of sun . . .

transmits nearly 74% of visible sunlight, yet keeps infra-red heat rays down to 20%

Functional characteristics of heat-absorbing, glare reducing plate glass, introduced late last year, have been successfully imparted to a flat drawn sheet glass by the Pittsburgh Plate Glass Company.

Known as Pennvernion Solex, the new greenish tint heavy flat-drawn glass product absorbs the red portion of the solar spectrum so that the light transmitted through it is the easier portion on the eyes. While it absorbs most of the solar infra-red and ultraviolet rays, it transmits 71-74% of visible light.

A room glazed with the product is reported to be 10 to 20°F cooler than a room with ordinary glass, resulting in load reduction of air conditioning systems. By excluding a large percentage of ultraviolet rays it reduces the possibility of colored fabrics fading or bleaching. Its reduction of solar energy transmission guards against too-great temperature variations detrimental to proper functioning of many delicate instruments.

Only about 20% of the infra-red heat waves are transmitted as compared with approximately 70% through conventional glazing materials, manufacturer reports. The new product excludes approximately 65% of direct solar radiation by absorbing 60% and reflecting 5%.

(Developed by Pittsburgh Plate Glass Co., Dept. CP, 632 Duquesne Way, Pittsburgh, Pa. . . or for more information check CP 1735 on handy form, pages 2 and 3.)

Explains infrared analysis, supplies data

Two-color booklet of eight pages explains what is meant by continuous infrared analysis, how it works. Booklet tries to provide information for deciding whether it is the best answer to some general cases of process control.

In developing theory in understandable terms, publication points out an easy and a difficult control problem. Spectra are compared. Several typical types of problems yielding to this method are listed and also a list of 13 specific analyses which are currently being run. These include carbon dioxide in a seven-component mixture and ethyl acetate in a toluene-air mixture.

Bul XXXVI is issued by Baird Associates, Inc., Dept. CP, 33 University Road, Cambridge 38, Mass. When inquiring specify CP 1736 on handy form, pages 2 and 3.



How Celite Mineral Fillers make a product free-flowing . . .



Keeping fertilizers "On the run"

REALIZING their product is one that cannot "cake-up" and still survive in a competitive market, leading producers of fertilizer use one of the Celite Mineral Fillers as a standard "anti-caking" ingredient.

The ability of Celite Fillers to keep a product free-flowing results from their

high absorption properties and unique diatom structure—properties which make them unusually effective safeguards against caking in deliquescent materials. They are two of the unusual physical characteristics that adapt these diatomaceous silica powders to numerous industrial uses.

THESE CELITE PROPERTIES BENEFIT MANY TYPES OF PRODUCTS

Because of their inertness and great bulk per unit of weight, Celite Mineral Fillers make ideal bulking agents for powders and pastes. Their tiny multi-shaped particles interlace to stiffen and strengthen admixtures. The microscopically small facets of these particles diffuse light so effectively that they can be utilized to impart any desired degree of flatness to a surface film. Their light, porous nature improves suspension, helps prevent

segregation. And their porous, thin-walled cellular structure imparts a delicate non-scratching abrasive action.

You may find Celite the "extra something" needed to lift your product above competition. Why not discuss its application to your problem with a Celite engineer? Or write for further information and samples to Johns-Manville, Box 60, New York 16, N. Y. In Canada: 199 Bay St., Toronto, Ont.

CHECK LIST OF PRODUCT BENEFITS OBTAINABLE AT LITTLE COST WITH CELITE MINERAL FILLERS

- Added Bulk
- Better Suspension
- Faster Cleaning Action
- Greater Absorption
- Improved Color
- Better Dielectric Properties
- More Durable Finish
- Increased Viscosity
- Elimination of Caking
- Higher Melting Point
- Better Dry Mixing
- Improved Dispersion



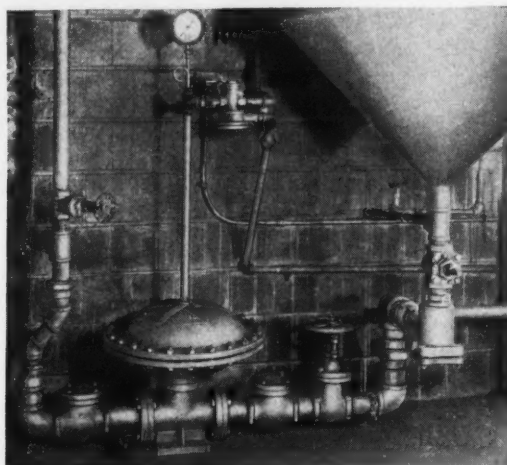
Johns-Manville CELITE®

MINERAL FILLERS

When inquiring check CP 1737 on handy form, pgs. 2-3

ODS — Diaphragm — SLURRY PUMP

link-free simplicity... a low maintenance feature!



There's nothing novel about a diaphragm being used to transmit a pumping impulse to stream of slurry or liquid. Up to that point the O.D.S. is similar to all other diaphragm slurry pumps.

But where the O.D.S. Pump does differ is in the way the diaphragm gets its impulse. In the O.D.S. this is created pneumatically — *not mechanically*. There is no link connecting the diaphragm with the source of power. There is no hole in the center of the diaphragm because there is no need for it. And further there are no slots or holes around the perimeter of the diaphragm where it is clamped between the cover and casing.

This combination of 'no mechanical link to the diaphragm' and 'no slots or holes in the diaphragm' makes the O.D.S. just about the simplest diaphragm slurry pump you can find anywhere. You can readily appreciate what these two design features mean in the way of low maintenance. Since maintenance is an important factor in pumps, why not get all the details about the O.D.S. Pump? In writing for our Bulletin 309-R, tell us about your pumping problem. You see, we also have the Olivite Centrifugal Chemical Pump. It might be better for your requirement.

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E. L. Bateman Pty., Ltd.
Johannesburg, Transvaal

When inquiring check CP 1738 on handy form, pgs. 2-3

IDEAS

Oxygen can be given six at same time...

dispensary oxygen line has six outlets for quick attachment of respirating device

Oxygen can be administered to six persons at a time in the company hospital of a large eastern chemical plant that has some hazardous operations involving gases and fumes. System was designed by Mine Safety Appliances Company, in collaboration with the chemical company's medical department.

Oxygen, stored in two 220 cu ft high-pressure tanks outside the dispensary, is piped at low pressure to six quick-



disconnect outlets around the room. An automatic cycling valve, operating with intermittent positive pressure, can be plugged into each outlet, as shown here. This instrument (Pneophore) administers oxygen in accordance with patient's breathing cycle, or at regular intervals if the patient is not breathing. Since it does not create suction in the lungs, it can be used safely on victims who have inhaled irritating gases.

(Mine Safety Appliances Co., Dept. CP, Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.)

Treat pressure-sensitive tapes to reduce breakage...

also stops adhesive transfer to roll backing surface when paper tapes are unwound

Announced is a "surface treatment" for the backings of most "Scotch" brand pressure-sensitive adhesive tapes. Treatment provides easy unwind, assurance against breakage and against adhesive transfer to the back surface of the tape. Other advantages cited are: permits use of more aggressive pressure-sensitive adhesives in most tape constructions and eliminates chance of splitting of such laminated backings as those used with acetate fibre tapes.

Process is currently being used on manufacturer's masking, filament, cellophane, electrical, acetate fibre, and acetate film tapes.

(Information from Minnesota Mining and Manufacturing Co., Dept. CP, 900 Fauquier St., St. Paul 6, Minn.)

Colored diagram shows flow lines of power plant system

Various piping systems of a typical steam electric generating station are clearly shown on 4-color flow diagram. Measuring 11 x 20", the diagram illustrates functional



You Can't Beat Gravity Pressure for Industrial Water Service

The Horton Watersphere provides chemical plants with dependable water pressure for industrial processes — general service — or fire protection. In each instance the force of gravity makes sure you get water when and where you need it.

Horton Waterspheres are built in standard capacities from 25,000 to 250,000 gallons. Write our nearest office for estimates or quotations if you want more dependable water service 24 hours a day. There is no obligation on your part.

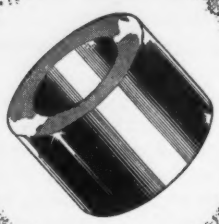
CHICAGO BRIDGE & IRON COMPANY

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Birmingham 1 1533 North Fifth St.
Boston 10 1007-201 Devonshire St.
Chicago 4 2116 McCormick Bldg.
Cleveland 15 2212 Guildhall Bldg.
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Seattle 1 1307 Henry Bldg.
Tulsa 3 1649 Hunt Bldg.
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When inquiring check CP 1739
on handy form, pgs. 2-3

CHEMICAL PROCESSING

WORKS WHERE OTHERS WON'T



for
**SUBMERGED
OILLESS
BEARINGS**



- OPERATE DRY or SUBMERGED IN DYES, PLATING, CLEANING & CHEMICAL SOLUTIONS, GASOLINE, FOODSTUFFS
- TRULY OILLESS AND SELF-LUBRICATING
- EXTREMELY DURABLE
- CONSTANT COEFFICIENT OF FRICTION
- APPLICABLE OVER A WIDE TEMPERATURE RANGE — even where oil solidifies or carbonizes
- EXTENSIVELY USED IN CONVEYORS, PUMPS & OVENS
- ROTATING SEALS OF GRAPHALLOY ARE UNEXCELLED

GRAPHITE METALLIZING CORPORATION

1004 NEPPERHAN AVENUE, YONKERS 3, NEW YORK

When inquiring check CP 1740 on handy form, pgs. 2-3

IDEAS

lines of a power plant, principal equipment, and a large number of valves required for controlling flow in the system.

Different valve types are represented by symbols and abbreviations. Important lines are so designated, with sizes indicated in proper relationship to an 8-inch main steam line. Various lines in the piping system are represented in color (red for steam, blue for feed water, green for untreated or raw water).

Bul FD is issued by Edward Valves, Inc., Dept. CP, 1200 W. 145th St., East Chicago, Ind. When inquiring specify CP 1741 on handy form, pages 2 and 3.

Institute seeks criticism of proposed methods for analyses . . .

packaging group attempts to determine effects of alkalis, color fastness, ink resistance

Three newly-proposed Packaging Institute testing procedures have been released to general industry for critical examination. Each of the proposed procedures is submitted from a separate subcommittee of the Institute's Printed Packaging Materials Committee.

"Proposed Test for Effect of Alkali on Various Types of Printed Packaging Materials" (PI Printing 1p-51) comes from the Alkali Test subcommittee. "Proposed Method of Testing Packaging Materials for Fastness to Light by Use of the Fade-Ometer" (PI Printing 2p-51) comes from the Fade-Ometer subcommittee. "Testing Resistance of Ink on Printed Packaging Materials to the Product in the Package" (PI Printing 3p-51) comes from the Product Resistance subcommittee.

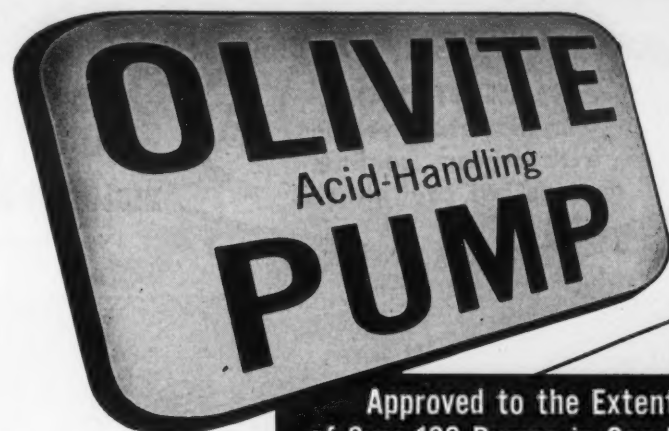
Institute's method of developing new test procedures is to first introduce it as "proposed." (Letter "p" in the index number designates it as "proposed"; letter "t" in a future index number refers to "tentative.") After a proposed procedure has been given a number of industrial trials, and criticisms have been referred to the originating committee, procedure is further studied and perhaps revised. Eventually it is re-issued as "tentative" and may remain in this classification until experience proves it a satisfactory testing method, in which case it becomes a "standard" method.

For copies of any of these three tests remit 25c each to the respective subcommittee at the Packaging Institute, Dept. CP, 342 Madison Ave., New York 17, N. Y.)

Centralized lubrication systems are explained in booklet

Advantages of manufacturer's centralized systems of lubrication are reviewed in 8-page, illustrated bulletin. Systems are suitable for lubricating all types of industrial machines, and incorporate these features as reported by the manufacturer: 1) saves time by lubricating all bearings in one minute or less, with equipment in full operation; 2) saves men by lubricating more bearings than 10 men; 3) saves as much as 20% power through friction reduction; 4) increases bearing life from 5 to 25 times; 5) saves at least 75% of lubricant by eliminating waste; 6) increases production by eliminating shutdowns to lubricate or to replace bearings.

"Studies in Centralized Lubrication" is issued by The Farvel Corporation, Dept. CP, 3249 E. 80th St., Cleveland 4, Ohio. When inquiring specify CP 1742 on handy form, pages 2 and 3.



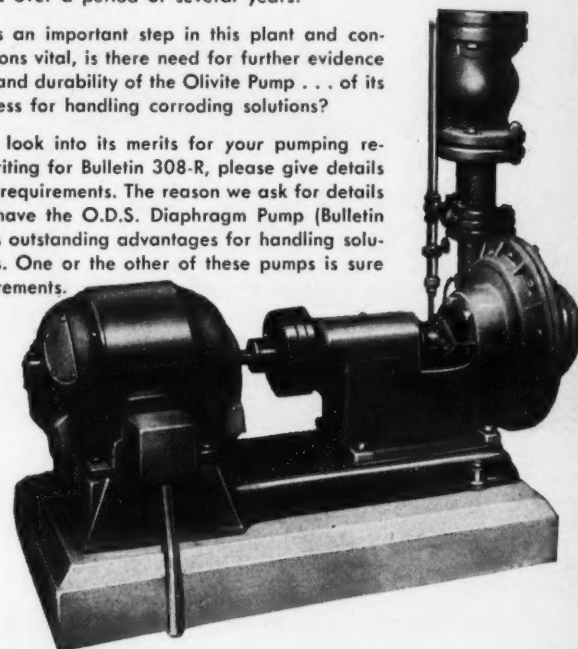
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of Over 100 Pumps in One Plant

HERE, in the east there's a large chemical plant with extensive acid pumping operations. Not only is the total volume handled very large but several different solutions, both hot and cold, are involved.

In this one plant there are over 100 Olivite Acid-Handling Pumps . . . with purchases spread over a period of several years!

Since pumping is an important step in this plant and continuity of operations vital, is there need for further evidence of the efficiency and durability of the Olivite Pump . . . of its practical usefulness for handling corroding solutions?

We suggest you look into its merits for your pumping requirements. In writing for Bulletin 308-R, please give details of your pumping requirements. The reason we ask for details is that we also have the O.D.S. Diaphragm Pump (Bulletin 309-R) which has outstanding advantages for handling solutions and slurries. One or the other of these pumps is sure to fit your requirements.



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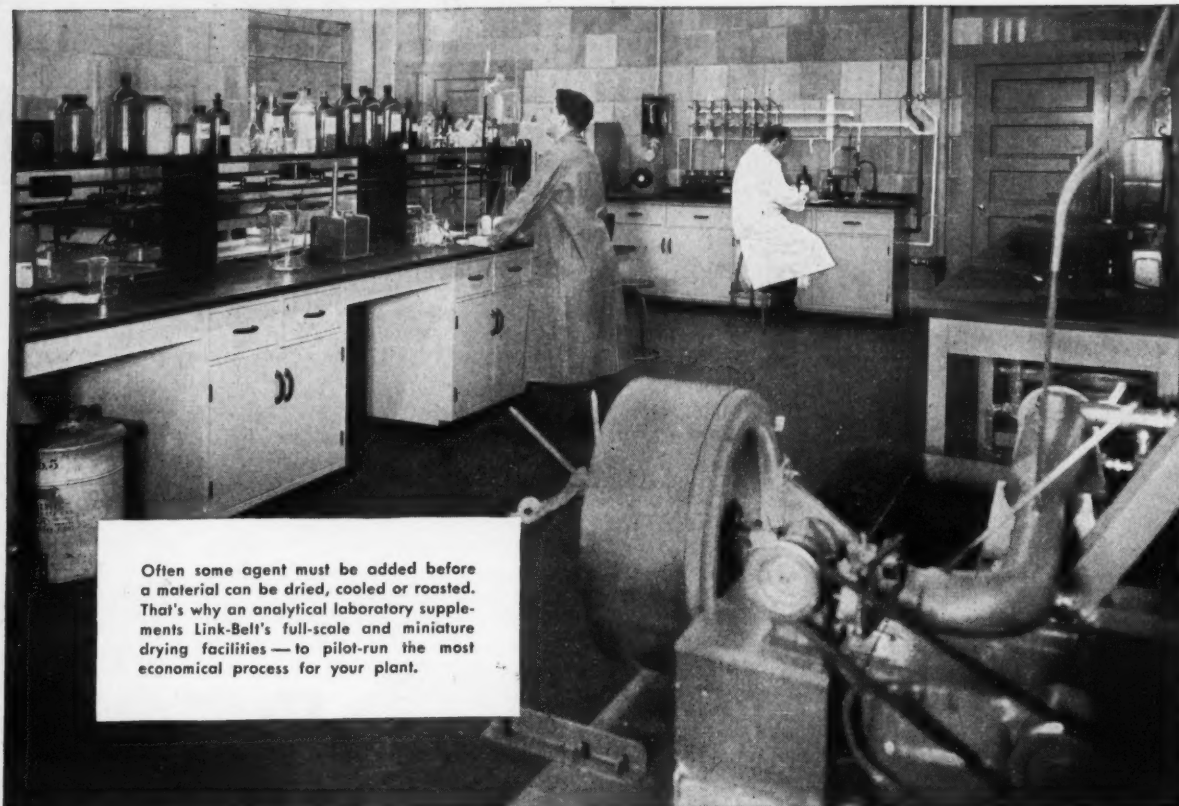
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When inquiring check CP 1743 on handy form, pgs. 2-3

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to manufacturers
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**We'll tell you how your
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Often some agent must be added before a material can be dried, cooled or roasted. That's why an analytical laboratory supplements Link-Belt's full-scale and miniature drying facilities—to pilot-run the most economical process for your plant.

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Don't gamble—you can be sure in advance what equipment, what processes are needed to dry, cool or roast your materials profitably. Take advantage of these facilities . . . send a sample—a pound or a ton of your product to the Link-Belt laboratory today.

Capitalize on the know-how gained through more than 1000 product tests we've conducted in this laboratory. Tests and research that have resulted in the installation of 500 Link-Belt Dryers in the field . . . successfully processing 100 different materials.

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When inquiring check CP 1744 on handy form, pgs. 2-3

IDEAS

More accurate techniques analyze mildew on painted surfaces . . .

use of stereoscopic microscope allows for differentiation of fungi and dirt

A paper presented at a meeting of the Southern Federation of Paint and Varnish Production Clubs tells of recent and more nearly accurate techniques of diagnosing mildew on painted surfaces. An instrument application described is use of the stereoscopic microscope. With it, the scientist can more exactly determine the presence of fungi and differentiate it from dirt.

Standard microscopes are also employed using both direct and vertical illumination. Although the vertical illuminator has been used for years in studying metals, its use in the paint industry is of comparatively recent origin. Many discolorations do not stand out distinctly as mildew when old methods of diagnosis are used; however, with vertical illumination, the criss-cross, winding strands of the fungus come into sharp relief.

By these methods the scientist can classify the organism present on the paint film, without having to use time-consuming cultural techniques. Also, these latter procedures often were not reliable since the paint-destroying mold might be hidden by other surface molds which multiplied more rapidly. Another important feature of the recent techniques is that sub-surface types of mildew can be detected.

Authors of "New Developments in the Diagnosis of Paint Mildew" are Milton Goll, chief of Nuodex microbiological laboratories, and two associates, H. D. Snyder, mycologist, and Herman Birnbaum, bacteriologist.

(Information courtesy of Nuodex Products Co., Inc., Dept. CP, Elizabeth F, N.J.)

Backwash mechanism cleans — no shut-down necessary

Twelve-page bulletin describes automatic backwash sand filter for handling sewage and industrial waste, paper mill "white water" recovery, and general water supply requirements. Filter has compartmented sand bed and traveling backwash mechanism which cleans one compartment at a time. Rest of filter bed operates normally and no shut-down or change-over is necessary. Bulletin pictures installed filters and operational data is tabulated.

Sectional illustrations show functioning of backwash mechanism and sand filter. Bulletin is concluded with similar treatment of auxiliary units such as circular and rectangular clarifiers, and flocculating equipment. Bul 46-A is issued by Hardinge Company, Incorporated, Dept. CP, 240 Arch St., York, Pa. When inquiring specify CP 1745 on handy form, pages 2 and 3.

Production of titanium getting into long-pants stage . . .

production expected to get up to 2½ tons per day in 1952 as contrasted with 100 pounds in 1948

Strides are being made in the production and melting of titanium, which were in an elementary stage three years ago. To meet vital military requirements, it is being developed at a much faster rate than usual for a newly produced metal. Titanium is getting into the long-pants stage of production.

A major contributor to the progress in titanium metallurgy

CHEMICAL PROCESSING

has been the Du Pont Co. which started the first small-scale commercial production in 1948. Then, rated capacity of their unit was 100 pounds, but its production did well to run half that much — total output for year being 5000 pounds. Now, a new Du Pont plant turns out regularly greater-than-ton lots of the metal — expected to get up to 2½ tons per day during 1952.

Important work has been done by this company in the melting and ingot casting of the metal. Because of its affinity for gases at high temperatures, casting into solid metal ingots presented a problem. Research teams overcame the difficulties by designing and building two special furnaces — for induction and for arc melting of the metal by surrounding it with inert gases. In the former, more than 15 tons of metal have been melted and ingots up to 650 pounds are now being cast. This contrasts markedly with the first 10 pound ingot.

Other furnace based on arc heating may hold the key to the continuous melting and casting of titanium — heretofore, not realized. In this furnace, ingots can be formed continuously from molten metal, then cut to suitable lengths. Furnaces of this type are now producing ingots as large as 1200 pounds.

With these advances in technology and plant capacity, it has been found that production has moved out ahead of the development of uses for the metal. This situation is regarded as temporary, however, for as the defense program moves ahead the demand is expected to go up substantially and require greater capacity.

Reports and studies up to now indicate that titanium metal will find use in the following fields.

1) *Aircraft power plants*: Its light weight and strength are needed here, and temperatures of operation are reaching higher than aluminum alloys can withstand.

2) *Low titanium alloys*: A number of iron and non-ferrous alloys use titanium in percentages from 0.1 to 3.5%. The use of high purity metal in these alloys enables producers to get cleaner and stronger alloys with greater regularity.

3) *Chemical equipment*: Unusually good corrosion resistance — particularly to oxidizing, chlorine and chloride reagents.

4) *Ordnance*: Reports have been published that unalloyed titanium is more resistant to projectiles than any armor plate now in existence.

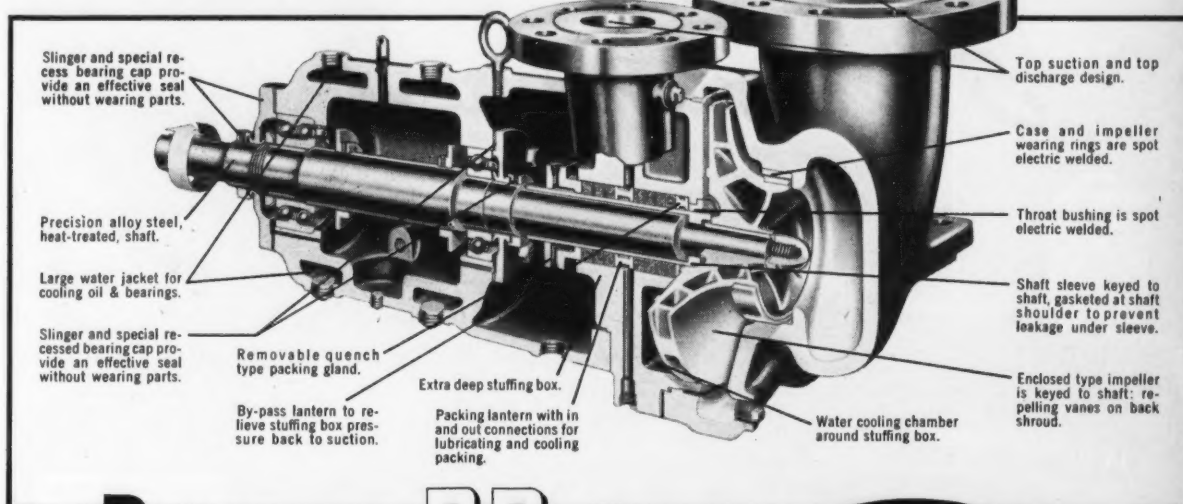
(Courtesy of E. I. du Pont de Nemours & Co., Inc., Dept. CP, Wilmington, Del.)

Cloth filtration of dusts in ceramics industry

Use of cloth-type dust collectors in the ceramic industry is the subject matter of a 4-page, 2-color bulletin. Although many operations in this field are characterized by high temperature conditions, synthetic cloths capable of withstanding high temperature conditions have made the use of cloth filters possible in all phases of the ceramics industries.

A series of case histories is presented, together with the benefits to be gained from cloth filtration — principally recovery of valuable materials that could otherwise be lost as dust. Illustrations accompany each history. Bul 252-A is issued by the American Wheelabrator & Equipment Corporation, Dept. CP, 1036 S. Byrkit Street, Mishawaka, Ind. When inquiring specify CP 1746 on handy form, pages 2 and 3.

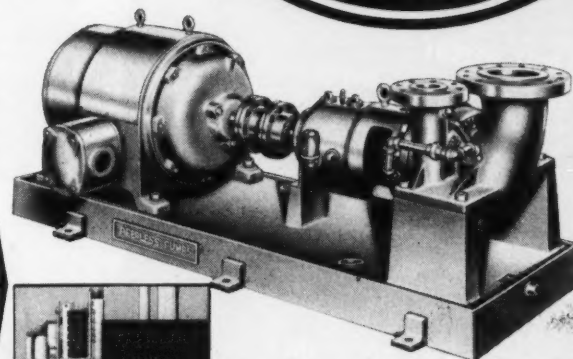
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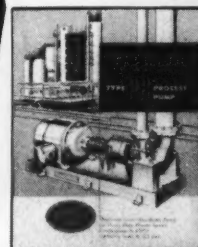
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When inquiring check CP 1747 on handy form, pgs. 2-3

Nickel shipping drums have these 5 advantages

1 I.C.C. ACCEPTANCE

Built to I.C.C. Specification 5K, the nickel shipping drum pictured here is used for safe, efficient handling and shipping of phosphorus oxychloride and phosphorus trichloride.

2 LIGHT WEIGHT

Tare weight of an average 55-gallon nickel drum is less than 125 pounds. Nickel drums are not only easier to handle, but they also enable you to save on freight charges.

3 CORROSION RESISTANCE

Nickel's high resistance to corrosion keeps metal pick-up low and helps maintain product purity. That's why Nickel is so widely used in the production, handling and transportation of phosphorus compounds, caustic soda, caustic potash, phenol and other chemicals.

4 STRENGTH AND WORKING QUALITIES

In addition to corrosion resistance, nickel possesses great mechanical strength and toughness. However, this does not mean that it is hard to fabricate. Nickel is readily bent, forged and machined. It may be welded, brazed and soldered by commonly used methods.

5 LONG LIFE

One company reports using the same nickel drums for handling phosphorus compounds since 1937. This is not unusual, for Nickel's unique combination of strength, toughness, corrosion resistance, hardness and ductility assures long equipment life... and minimum maintenance expense.

At present, Nickel and Inco Nickel alloys are on extended delivery. Therefore, it will pay you to anticipate your needs... order well in advance, giving necessary N. P. A. ratings and complete end use information.



Nickel

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

When inquiring check CP 1748 on handy form, pgs. 2-3

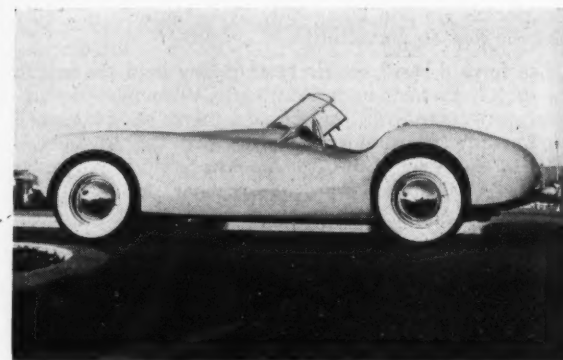
IDEAS

No rust, no dent plastic car body is stronger than steel; production begun...

one-piece molding weighs 185 lb, is 2/10" thick and retains original shape after impact

Commercial production has begun on dent-proof, rust-proof plastic automobile bodies, constructed of Vibrin polyesters and layers of glass fibers. This combination, for its weight, is reported stronger than steel.

Currently the body is available in one design for frames of 100" wheelbase. Molded in one piece, the product is approximately 2/10" thick and weighs 185 lb. Because of its resiliency, the Vibrin-glass combination springs back



Plastic body is rust-proof, dent-proof

to its original shape after impact, and will not dent under punishment of accidents which now result in crumpled fenders and doors. Breaks are possible under very heavy impact, but the material can be repaired inexpensively and with little effort.

To test its strength, the first body produced was crashed into a tree at a speed of 25 mph. A crack resulted approximately 14" long at point of impact but was repaired with a patch of glass fiber and plastic in less than an hours time.

(Development of Naugatuck Chemical Div., U.S. Rubber Co., Dept. CP, Rockefeller Center, New York 20, N. Y.)

Outlines features in planning high vacuum system

Introduction to 49-page bulletin summarizes important considerations in establishing high vacuum system. Selection of correct pumps, connections, gages, and traps is based on factors of time and speed desired, quantities of gas handled and pressure range. Chart of speed-pressure curves permits quick location of pump range. Conductance chart presents effect of connecting tube sizes on efficiency of pump. Data is tabulated for the various pumps, which are freely pictured.

Nine organic liquid diffusion pumps are described and illustrated. Pumps utilize eccentric rotor with spring-operating moving vane and attain vacuums as low as 0.01 micron of mercury. Applications include vacuum casting of metals, dehydration procedures, and molecular distillation of variety of substances. Freezing and liquid air traps are described in addition to accessories such as gages, bell jars, rheostats, burners, etc.

Bul 10D is issued by Central Scientific Company, Dept. CP, 1700 Irving Park Rd., Chicago 13, Ill. When inquiring specify CP 1749 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

Packed towers and packing — for designer and operator

Author Max Leva has done a very good job of assembling practical and useful data concerned with the design and operation of packed towers. The 118-page book should have wide interest to process designers and operators because the packed tower is not generally ordered as a standard unit, but is usually designed by engineers who are immediately associated with the process.

Book is divided roughly into two major parts. The first part deals essentially with the physical aspects, as defined by flow as such, whereas the second part presents chiefly design methods, data, and performance comparisons of packings. Some new material, not yet appearing in the technical press, has been introduced: a nomographic solution of pressure drop under irrigated working conditions; and a generalization for liquid hold-up in ring and saddle packings. Literature data on loading and flooding were re-correlated for presentation.

Illustrative problems are solved throughout the book, with the help of the numerous charts, tables, graphs, and nomographs. Appendix contains drawings and discussion of various tower designs, conversion factors and tables, density and viscosity tables, partial pressure plots, and equilibrium curves. Last five pages contain complete index.

"Tower Packings and Packed Tower Design" costs \$6.00, but can be obtained free by those who demonstrate a definite need for it. It is published by The United States Stoneware Company, Dept. CP, Akron, Ohio.

Discusses industrial application of radioisotope techniques

Eight-page booklet describes possible uses of radioisotope techniques as they relate to problems of production, development, and research in industry.

It briefly sketches laboratory facilities and services they offer in research and investigations for industry.

"The Atom Provides a New Industrial Tool" is issued by Industrial Division, Nuclear Research and Development, Inc., Dept. CP, 1094 Sutter Ave., St. Louis 5, Mo. When inquiring specify CP 1750 on handy form, pages 2 & 3.

For more information on product at right, specify CP 1751
... see information request
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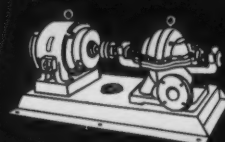
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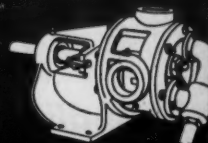
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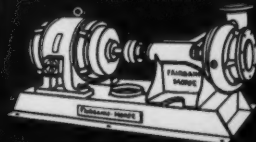
Two-Stage Centrifugal Pumps
Capacities: 100-560 G.P.M.



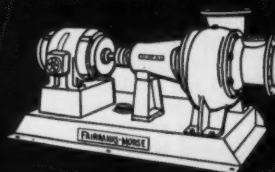
Built-together
Centrifugal Pumps
Capacities: 5-1000 G.P.



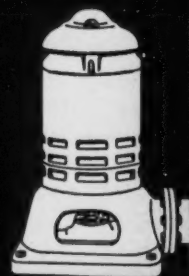
Frame Constructed
Rotary Pumps
Capacities: 1.3-450 G.P.



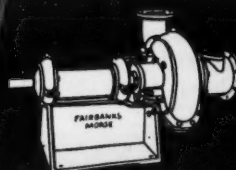
Base-Mounted Centrifugal Pumps
Capacities: 25-3000 G.P.M.



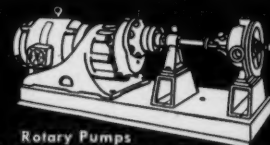
Horizontal Angle Flow Pumps
Capacities up to 100,000 G.P.M.



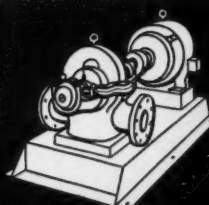
Deep Well Turbine Pump
Capacities: 15-25,000 G.P.



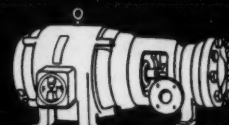
Paper Stock Pumps
Capacities up to
2500 G.P.M.



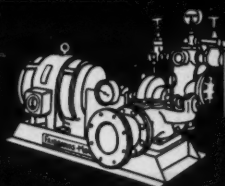
Rotary Pumps
With Geared Head Motor Drive
Capacities: 20-450 G.P.M.



Split-Case Centrifugal Pumps
Capacities: 50-50,000 G.P.M.



Two-Stage Built-together Pumps
Capacities: 5-1000 G.P.M.



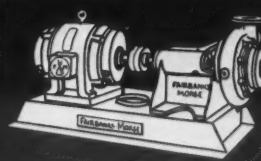
Centrifugal Fire Pumps
Capacities: 500-2000 G.P.M.



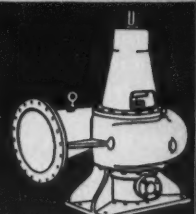
Vertical
Propeller Pumps
Capacities:
1250-216,000
G.P.M.



Bladeless Impeller
Food Handling Pumps

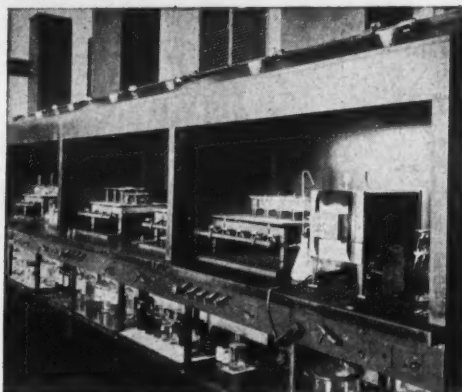


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100,000 G.P.M.

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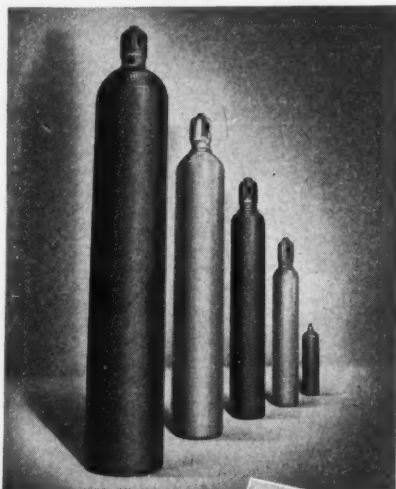
Precautions that must be taken in handling perchloric acid make special hoods a necessity. Now Alberene Stone offers you fume hoods specially designed to reduce hazards in working with perchloric acid... specially designed to give you greater safety. For prompt advice on any of your fume problems write Alberene Stone Corporation of Virginia, 419 4th Ave., N. Y. 16, N. Y., or visit our nearest branch office.

When inquiring check CP 1752 on handy form, pgs. 2-3

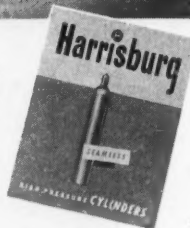
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When inquiring check CP 1753 on handy form, pgs. 2-3

IDEAS

Application of five-rule summary can bring in dividends of longer belt life...

loading, unloading, construction of chutes should be carefully considered

Proper care of belting used in conveyor installations will not only lower maintenance costs, but will also bring in dividends through increased service life of the belting material. This point was recently confirmed through a study of factors contributing to excessive belt wear, undertaken by one of the country's largest manufacturers of conveyor belting, the Thermoid Company of Trenton, N. J.

The study singled out loading conditions as a prime factor in belting deterioration, and emphasized that both existing and proposed installations should be regarded with the intention of creating "ideal" working conditions. One way to minimize belt wear is to see that the belt is loaded with the material moving in the same direction and at the same speed as the belt itself. Where this requirement has not been satisfied, installations have shown excessive belt wear due to abrasion created at the loading point.

When lumpy material is being carried, an attempt should be made to have such material cushioned by a pre-laid layer of fines. A screen or "grizzly" at the bottom of the loading chute, or in some instances, an oval or "fishtail" notch cut in the lip of the chute will satisfactorily deposit a layer of fines over the belting, thus providing protection against bruising. At the same time, the velocity of the loading material flow should be controlled by pitching the loading chute properly. If this is not feasible, a baffle of iron or wood bars should be constructed in the chute so as to reduce the speed of material flow onto the belt. However, the minimum rate of this flow should still be sufficient to maintain delivery of the desired volume.

In like manner, falling distance between chute and belting should be minimized to prevent excessive speed of material-flow which, in the case of lumpy material, might be great enough to cause belt damage. In no instance should a material strike the belt directly above a solid pulley because the resulting hammer-anvil action will quickly render the belting unusable. Chute should be located so that material will strike the belt between idlers. However, in cases where heavy material is being loaded, it may be necessary to load directly over rubber-covered or pneumatic idlers.

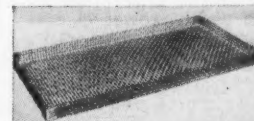
In some cases, impact of the load between idlers will set up belt vibration. Resultant chattering may depress the belt sufficiently to allow material to escape under the skirt-boards. This may be prevented by locating the chute so that the loading material will strike the belt far ahead enough of the tail pulley to allow insertion of at least one belt-steadying carrier pulley. Also, carrier pulleys should be more closely spaced around the loading zone because of the impact loading of belt at that point.

Construction of loading chute skirt-boards and flexible skirts should be carefully considered. Skirt-boards should be long enough to settle the material before it leaves the loading area. Flexible skirts are preferably improvised from rubber-covered edges of belting remnant. These remnants should be placed so that the rubber-covered edge contacts the belting. Should this be reversed, and the exposed-fabric edge of belt remnant placed against the moving belt, grit will collect in the fabric. Resultant abrasive action of the flexible skirt will, in time, wear a track through the belt cover.

Vertical spacing between chute skirt-boards and belt increases toward the open end of the chute. Thus, the

What type of CUSTOM BUILT WIRE CLOTH PARTS

do you need



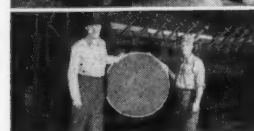
heat
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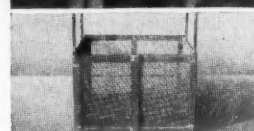
straining?



screening?



filtering?



handling?

You can be sure of getting exactly what you need in custom built wire cloth parts when you call—

Cambridge

With more than 30 years experience in this field, we can work from your own prints... or, if none are available our design engineers will draw up prints based on your description of the job the part must do.

Our newly expanded production facilities include equipment for cutting, forming, bending, shaping and welding of any metal or alloy in sheet, rod, or wire cloth form... as well as our large battery of wire cloth looms. Tell us your needs. Let us tell you how economically and quickly we can fill them. Write direct or call your Cambridge field engineer. Look under "Baskets-Wire" in your classified telephone directory.

FREE CATALOG describes
Cambridge facilities for fabricating metal specialties.
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**The Cambridge
Wire Cloth Co.**
Dept. F • Cambridge 4, Md.

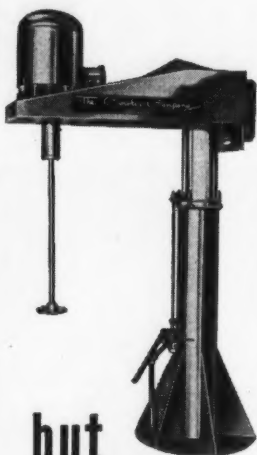
WIRE CLOTH METAL CONVEYOR BELTS SPECIAL METAL FABRICATIONS

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check CP 1754
on handy form, pgs. 2-3

CHEMICAL PROCESSING

same
working
space



but
CAPACITY
DOUBLED

with a Cowles



Stymied by insufficient dissolving capacity? Then replace your present mixer with a Cowles Dissolver — it more than doubles your capacity in the same working space!

THE COWLES DISSOLVER is a high-speed unit. Its impeller operates at velocities up to 7,500 f.p.m. And that means dissolving and dispersing move 2 to 20 times faster — that you save time and labor while improving your product. It's rugged, fast-loading, easily maintained — performs tasks other mixers cannot because it's engineered to the job.

WRITE FOR CATALOG on Cowles Dissolvers! And ask to have a detailed test run on your materials — no obligation.

The Cowles Company
INCORPORATED
113 TRACKSIDE • CAYUGA, N. Y.

When inquiring check CP 1755
on handy form, pgs. 2-3

IDEAS

width of flexible skirts, as cut from a belt remnant, should increase toward one end. This construction allows a uniform contact between the flexible skirt and belt over the entire length of the chute skirt, and minimizes spillage around the loading point. At the same time, wedged-in lumps of material can be worked free by the forward motion of belting.

In summary, belting life depends on these five conditions of loading: 1) Loading material should discharge at the same speed and in the same direction as that of belt movement. 2) Lumpy material should be cushioned on belting by a pre-laid layer of fines. 3) Chute discharge should strike between closely-spaced carrier pulleys, or if heavy material is encountered, should strike directly over rubber-covered or pneumatic idlers. 4) Falling distance from chute to belting as well as discharge velocity of material should be minimized. 5) Chute construction should be such as to settle the load properly without allowing spillage or jamming of material around the chute outlet.

(Courtesy of the Thermoid Company, Dept. CP, Trenton, New Jersey.)

Launch plan to inform management of material handling progress

An Industry Service Plan, designed to better familiarize industrial management with economics, administration, and technology of modern material handling, has been launched by the Materials Handling Institute, Inc. The plan will use the press, the platform, and the conference table for "field work" with industrial leaders.

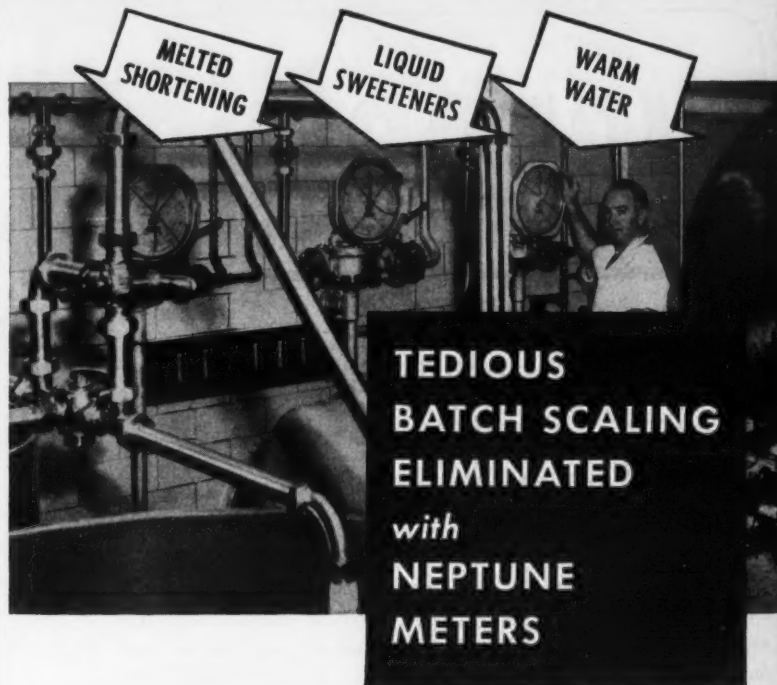
Directing the new plan for MHI is George R. Brockway, vice-president of Rapids-Standard Company, Inc., Grand Rapids, Mich., and a committee of six authorities from equipment manufacturing firms in the material handling field.

Principal activities included in the plan are: 1) closed workshop-type conferences between users and manufacturers facing common technical problems; 2) articles and other contributions to trade, technical, and business publications, designed to give management the benefit of group experience from all branches of the material handling field; 3) local conferences in industrial cities between representatives from each city's leading industries and an itinerant team of authorities on the economic, administrative, and technological aspects of material handling; 4) a speaker's bureau to provide presentations on material handling before trade and business associations and technical societies; and 5) reports and surveys for wide distribution to industrial leadership groups.

Adds "know how" to production and development services

Twelve-page bulletin summarizes research, development, and manufacturing facilities available to solve industrial problems. Featured service is production of polyethylene plastic articles such as bottles, sheets, tubing, film, etc. Two-color bulletin pictures engineering designs which resulted from research investigations. Design features relate to automatic packaging machinery for can, glass, and carton production lines.

Bulletin integrates services and equipment offered in fields of machine design, plastics, glass, packaging, and metals. Bul "How Emhart Can Help" is by Plax Corp., Dept. CP, Box 1019, Hartford 1, Conn. When inquiring specify CP 1756 on handy form, pages 2 and 3.

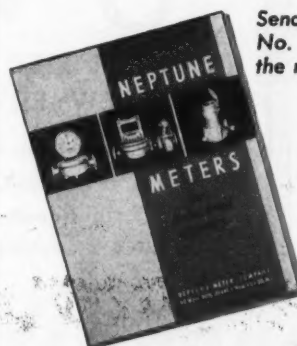


**TEDIOUS
BATCH SCALING
ELIMINATED
with
NEPTUNE
METERS**

With this ingenious homogenizing system, First National Stores, Inc. pre-mixes salt, sugar, milk, shortening and water into an emulsion that can be pumped easily to their bread mixers. These pre-mixed batches are big, working from whole bags or drums of dry ingredients, with Neptune Auto-Stop meters automatically, accurately delivering the right amount of water, melted shortening and liquid sugar to the pre-mix tanks.

The system eliminates tedious batch scaling, produces more uniform quality by eliminating human errors, saves ingredients that adhere to scaling buckets, tightens up on inventory control, and saves time lost in cleaning up.

Start you thinking? Let your imagination tour your plant. Aren't there several spots where accurate liquid metering can speed up batch mixing, simplify processing control, wipe out spoilage or spillage, or keep tabs on liquid inventories and costs? Ask our field engineers for ideas—put over 60 years of experience with more than ten million meters to work for you.



Send for new Industrial Meter Bulletin
No. 566-N P — it shows how to select
the right meter for your process.

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When inquiring check CP 1757 on handy form, pgs. 2-3

versatile!

handles:

**CAPACITIES TO 3000 GPM*
TEMPERATURES TO 1000°F
ANY DEGREE OF PH
PRESSURES TO 6000 LBS.**

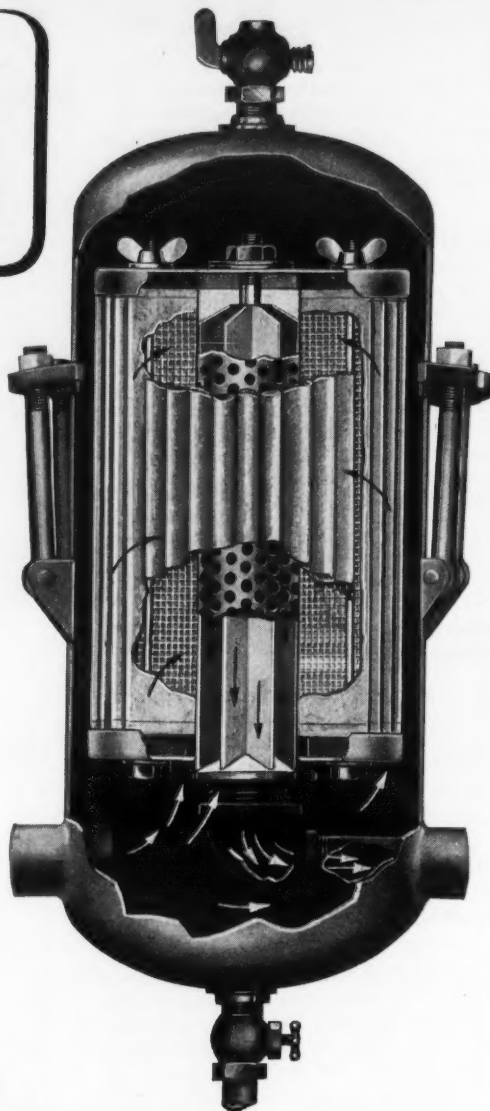
A recent survey showed hundreds of liquids in a wide range of viscosities, temperatures, acidities, alkalinities, pressures and capacities successfully handled by Staynew Filters. Since the exclusive Staynew design permits use of *any medium in sheet form that can be crimped*—metal, plastic, fabric, ceramic and mineral media could be used for filtration in degrees of fineness to 2 microns. Parts exposed to the action of the liquid were built in Stainless Steel, Monel, aluminum and Inconel as well as in steel, iron and bronze—yet the basic and efficient Staynew design remained the same in every case.

This survey not only demonstrated the unsurpassed versatility of Staynew Filters, but added to the already large store of specialized data compiled by Staynew engineers... data available to anyone with a problem in filtration.

*Unlimited in Multiple Units



Staynew Radial Fin Construction provides the largest possible filtering area for available space. **Slip-On Insert**—exclusive in Staynew Filters—permits simple, inexpensive replacement of media.



Staynew LIQUID FILTER

PARTIAL LIST OF LIQUIDS FOR WHICH STAYNEW FILTERS ARE IDEALLY SUITED

Water	Plastic Solutions	Miscellaneous Chemical
Acids	Petroleum Products	and Aqueous Solutions
Paints	Liquefied Gases	
Varnishes	Organic Liquids	

BULLETIN D-11 ON REQUEST.

REPRESENTATIVES IN PRINCIPAL CITIES

DOLLINGER CORPORATION

69 CENTRE PK., ROCHESTER 3, N. Y.

DOLLINGER
WE PROTECT MOTOR
STAYNEW FILTERS

When inquiring check CP 1758 on handy form, pgs. 2-3

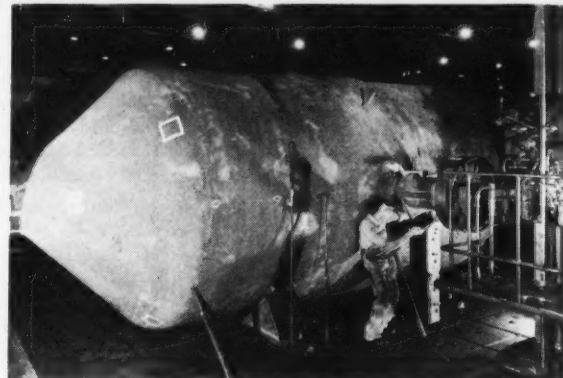
IDEAS

Cooks cotton seed linters into pulp for making rayon, plastics . . .

digester rotates end-over-end to assure a more uniform pulp under pressure of 165 psi

Rotating digesters are now turning cotton seed linters into pulp for rayon and plastics at the Memphis plant of the Buckeye Cotton Oil Company, subsidiary of Proctor & Gamble.

Each of six digesters is designed to operate at a pressure of 165 psi at temperatures up to 350°F. Similar to the



Rotating end-over-end, digester turns cotton seed linters into pulp for plastics and rayon

type employed in many pulp mills, they are cylindrical in shape, 32½' long, have ID of 11', and have an elliptical head. The charging nozzle, through which the cotton seeds and caustic are poured into the vessel is 2' in diam and fitted with a portable cover. Pulp discharge is a 90° included-angle cone. Cooked pulp is removed through a bottom blow nozzle 8" in diameter.

To provide agitation and to assure a more uniform pulp, digester rotates end-over-end, one revolution every four minutes. The cotton seed linters in a caustic solution are "cooked" with steam as the vessel rotates.

With contents, each vessel weighs 100 tons and is supported by two trunnions resting in heavy water-cooled bearings. Trunnions, 16" in diam, are of forged steel, welded into a heavy center reinforcing section 4¾" thick, which extends around entire circumference of the digester to distribute stress equally.

Steam is introduced while the vessel is rotating, through one of the trunnions which terminates in a piping arrangement inside the digester.

Each unit is driven by a 50 hp motor through a suitable speed reducer and coupling. Drive mechanism is capable of taking greatly increased torque created by the shifting center of gravity when the digester is partly full. At the maximum condition this torque amounts to 540,900 foot-pounds, with an end thrust of 118,000 pounds.

(Information supplied by The Babcock & Wilcox Co., Dept. CP, 85 Liberty St., New York 6, N. Y.)

Develop roller printing of 100% dynel fabrics . . .

excellent washability of material is not lost and resistance to sunlight is high

Successful roller printing of 100% dynel fabrics is now possible on a commercial basis, according to Decora Corp., New York. Method of production is reported to take advantage of experience with vinyl films. A full range of

CHEMICAL PROCESSING

colors is available, including blacks, whites, pastels, and deep shades.

An unforeseen advantage of the printed fabrics is their high resistance to sunlight. Fade-O-Meter tests indicate that the printed areas have a light fastness of 80 hours or more, so that good overall sun fastness is achieved by printing fabrics with a light background color over the entire surface and then surprinting the design in the desired colors.

The excellent washability of dynel is not lost by this method of printing, as the fabrics show no bleeding or fading after repeated 45-minute washings at 160°F. The printed goods are stated to be highly resistant to crocking and to retain the soft hand of the original cloth.

(Courtesy of Carbide and Carbon Chemicals Co., Division of Union Carbide and Carbon Corp., Dept. CP, 30 East 42nd St., New York 17, N. Y.)

Conducting research, on preform molding techniques . . .

secondary feature of new lab is service to assist customer with preforming problems

What is believed to be the first preform molding laboratory sponsored by a polyester resin manufacturer has been put into operation by the Pittsburgh Plate Glass Company, Paint Division, at its Milwaukee Research Laboratory.

The new preform lab is designed primarily to expedite research and development problems pertaining to the company's series of polyester resins marketed under the name Selectron. The lab is also being used to find the solution to customer preforming problems in instances where the fabricator does not have the necessary equipment to thoroughly explore his own preforming techniques.

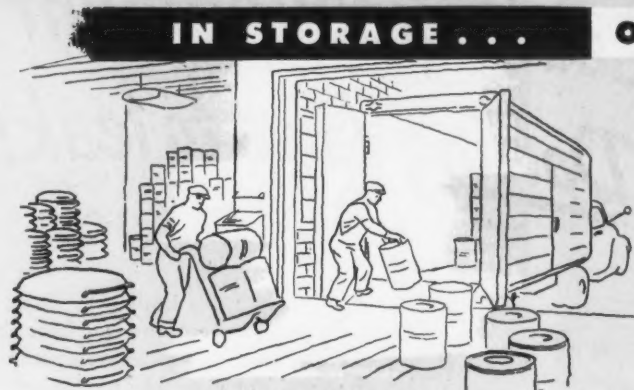
The preform technique of molding is used to produce items such as refrigerator compartments, helmets, chairs, drawers and many types of housings and structural parts. Company points out that the customer service is a secondary feature of the preform lab. It does not plan to manufacture preforms, even on a limited scale. As mentioned, research and development procedures pertaining to Selectron molding will be highlighted by the laboratory.

(Summary of information received from the Pittsburgh Plate Glass Company, Dept. CP, 632 Duquesne Way, Pittsburgh, Pa.)

Recommends line purifier to cut processing costs

Printed in yellow and brown, this six-page fold-out bulletin describes steam, air, and vapor purifier. Drawings supplement a table of sizes for six models. These purifiers are recommended for cleaning and drying steam or gas flows. Chief advantages are the lowered corrosive and erosive properties of the gas or vapor after moisture and particles of scale have been removed.

Applications and operation are explained and illustrated. Drawing shows rotary element in action. Efficiency is high, bulletin explains, with 99% of all entrainment being removed. Bul 500 is issued by Purifier Div., The V. D. Anderson Company, Dept. CP, 1935 W. 96th St., Cleveland 2, Ohio. When inquiring specify CP 1759 on handy form, pages 2 and 3.



SIMPSON MIXED MATERIALS STAY MIXED

THIS you can depend on. Once materials are mixed in a SIMPSON Mix-Muller they stay mixed! Even after prolonged storage . . . or bouncing around in transit . . . where conventionally mixed materials tend to segregate or stratify . . . Simpson-mixed materials retain their constant stability.

Segregation can occur only where materials have been improperly mixed . . . where individual grains have merely been placed next to each other. Contrast this to mulling in a Simpson Mix-Muller, where each grain is subjected to a kneading, smearing, mulling action which actually blends component materials into one . . . where blending is intimate, thorough and uniform.

In addition, SIMPSON Mix-Mullers require less labor, less horsepower, and are safer to operate. You can obtain more information from a National Engineer. Write for details today.

DO YOU REALLY KNOW WHAT MULLING IS?

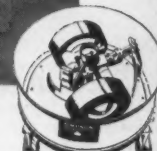
Watch the practiced technique of a chemist's mortar and pestle — the intensive rubbing and smearing actions — and basically, **THAT'S MULLING!**

Mulling with a SIMPSON Mix-Muller utilizes a special pair of revolving mullers and plows mounted on a stationary pan. The mullers are adjustable and are supported by rocker arms. This leaves the mullers free to ride on the material creating a true mulling action as they revolve. The results are thorough, more accurate blending . . . unaffected by rough handling in transit, or in long storage periods.

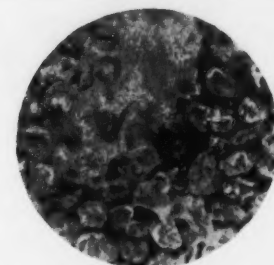


SIMPSON Mix-Muller® Division

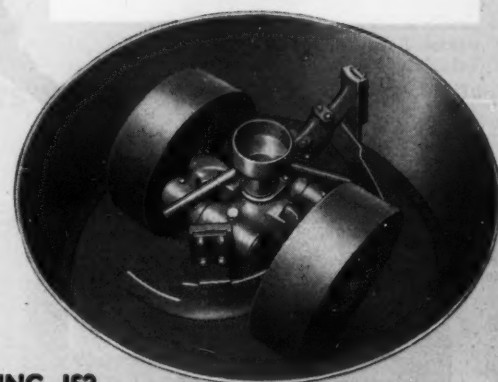
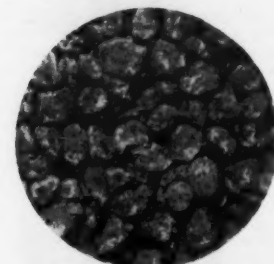
NATIONAL ENGINEERING CO. 604 Machinery Hall Bldg., Chicago 6, Ill.



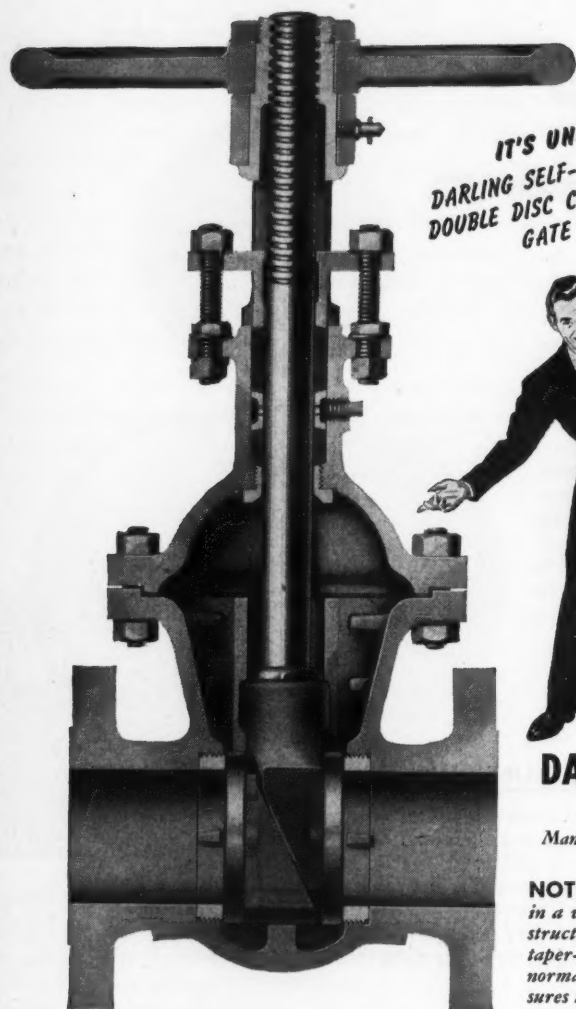
When inquiring check CP 1760 on handy form, pgs. 2-3



(ABOVE) Conventionally mixed material showing typical smears of unmixed materials. (BELOW) Simpson mixed material showing complete uniformity of mix—which will remain in that form even in transit, or after long storage periods.



WHY seat misalignment doesn't cause this Darling Valve to leak!



IT'S UNIQUE
DARLING SELF-ADJUSTING,
DOUBLE DISC CAST STEEL
GATE VALVE



DARLING VALVE & MANUFACTURING CO.

Williamsport 4, Pa.

Manufactured in Canada by Sandilands Valve Manufacturing Co., Ltd.,
Galt 19, Ontario

NOTE: Darling gate valves are made in a wide range of sizes, types and constructions, including solid and slotted taper-seat wedge types, for all kinds of normal and corrosive services in pressures up to 1500 pounds.

NO gate valve body ever made is entirely immune to distortion caused by line stresses and temperature changes. Yet even slight distortion can throw the seats out of alignment—probably the most common cause of leaky valves and costly replacement.

That's one reason why Darling gate valves, with their unique wedging principle combined with fully revolving double discs and parallel seats, have the jump on other valves. They easily, *automatically* adjust for valve body distortion, cinching tight, leak-proof closure without destructive strong-arm tactics. Most important, you avoid costly down-time and repeated maintenance headaches.

But that's not all! Actually, this Darling principle offers several other equally important time-and-money-saving advantages. In plant after plant they add up to trouble-free performance and longer service life with a very minimum of attention.

GET ALL THE FACTS

Send for descriptive cast steel valve Bulletin No. 5003.



FOR PLUS VALUES, JOB-PROVED AGAIN AND AGAIN

When inquiring check CP 1761 on handy form, pgs. 2-3

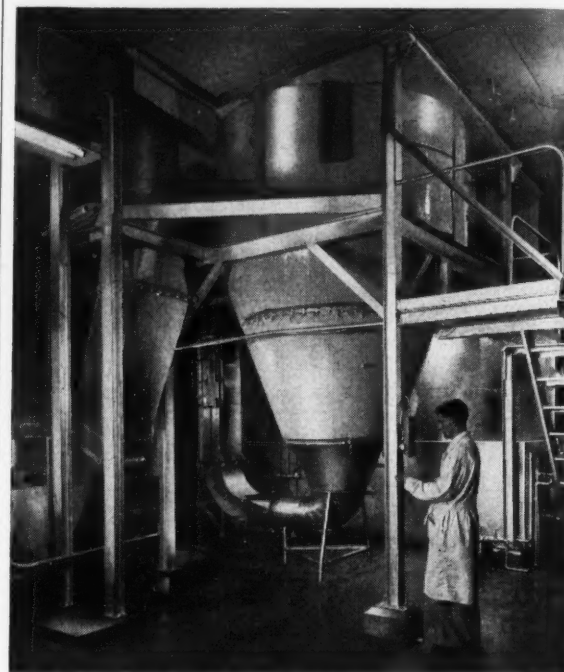
IDEAS

Lab to test spray drying of products . . .

is equipped to study spray chilling, secondary heating and cooling of dried product, powder classification

Another spray drying test laboratory has recently opened, this one in North Branch, N. J. Bowen Engineering, Inc., states that the laboratory will include the latest design stainless steel production equipment as well as its laboratory spray dryer. Tests can be made at temperatures up to 1000°F using direct heat, and at correspondingly lower temperatures where indirect heating is necessary for the product being dried.

Other operations that can be demonstrated in the laboratory are spray chilling, secondary heat treatment of spray-dried



View taken in new drying test laboratory

product, cooling of product after drying, and classification of coarse powder from fines during the drying process.

Chemical reactions can also be studied in the dryer. Facilities include a laboratory for product evaluation, refrigerated room for storage of certain materials, and separate powder collection room.

(Bowen Engineering, Inc., Dept. CP, North Branch 20, New Jersey.)

Tells story of process instruments during peace and war

Process instruments and their part played in promoting better living and national defense through industrial use is graphically told with photos in 20-page brochure. How the instruments accelerate research and speed up production for peace and defense is revealed by the wide selection of photographs.

"Tomorrow is Today" is issued by Brown Instruments Division, Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne and Windrim Ave., Philadelphia 44, Pa. When specify CP 1762 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

Vacuum process for treating wood with preservatives . . .

said to be faster, cleaner, more efficient than open-tank ways. A unit to treat sash, frames, and other millwork with pentachlorophenol preservative and water repellent has been announced jointly by the Wood-Treating Chemicals Company of St. Louis, Mo., and Carr, Adams and Collier Company of Dubuque, Iowa. It is said to be faster, cleaner, and more efficient than currently used open-tank immersion methods.

The new process employed by this vacuum sealer unit assures better penetration and distribution of the treating solution in the wood. A final vacuum after treatment leaves wood surfaces in a dry condition as they come from the unit. Wood treated by this process with solutions of Monsanto's pentachlorophenol have high resistance to fungi and wood-destroying insects, as well as a high degree of dimensional stability.

Available in several sizes, the vacuum sealer unit consists essentially of a 2-section vertical treating vessel, millwork cage, and the auxiliary units and controls for the automatic operation of the system. The upper portion of the treating vessel is automatically elevated for charging the wood into the vessel and an electric timer controls the pneumatically operated 3-phase treating cycle of about 3½ minutes duration. The equipment can also be manually operated, and can be adapted to give other than standard treatments for special jobs.

In a normal sequence, the upper portion of the treating vessel is raised to permit charging of the material and lowered prior to drawing a vacuum which partially evacuates the wood cells. The cage is then submerged into a treating solution reservoir in the lower portion of the treating vessel below the floor level. Excess solution is removed quickly by a final vacuum applied after this cage is raised.

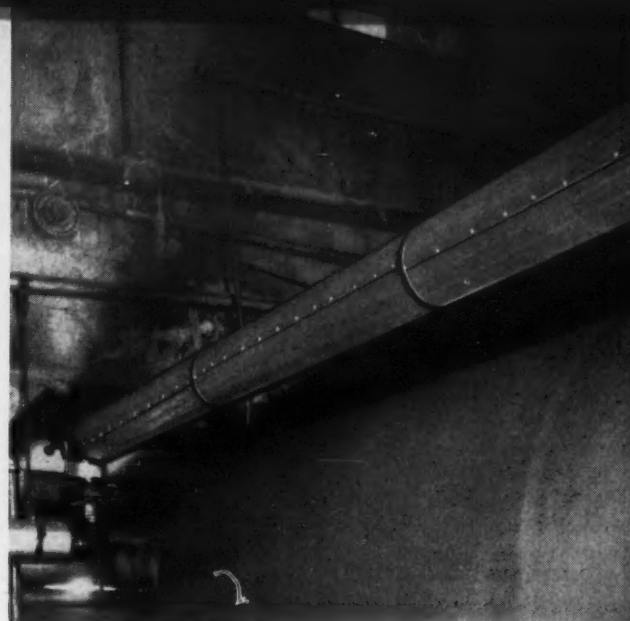
The first of the new units is operating at the Dubuque, Iowa, Plant of Carr, Adams and Collier Company. Initial plant runs have demonstrated that the unit eliminates time consuming operations and permits quicker glazing, painting, and finishing of the treated wood.

(Summary of information made available by the Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo.)

For more information on product at right, specify CP 1763
... see information request blank between pages 2-3.



IN PETROLEUM REFINERIES like this a new kind of aluminum jacketing is used to protect the insulation on hot and cold lines. It is known as Childers Aluminum Jacketing and is especially engineered to combine the long life and weather resistance of aluminum with a low first cost. It goes on quick and easy—can be used and re-used. It is made of tough but flexible .006" 35 aluminum alloy, so it handles easily and requires no shop forming.

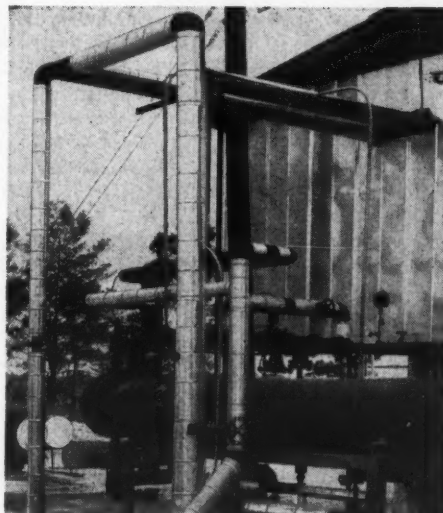


IN CHEMICAL AND PAPER plants: engineers are finding new uses for this easy-to-handle jacketing. Childers Jacketing here is in use at Scott Paper Company's tremendous Chester, Pa., plant. The insulated line passes between fast moving rolls carrying the felt used in paper making both above and below the line. The Aluminum Jacketing protects against paper dust and water, both of which are always present in the manufacture of paper. The jacketing also appreciably diminishes the possibility of the spread of fire which might strike across ordinary canvas jacketing.

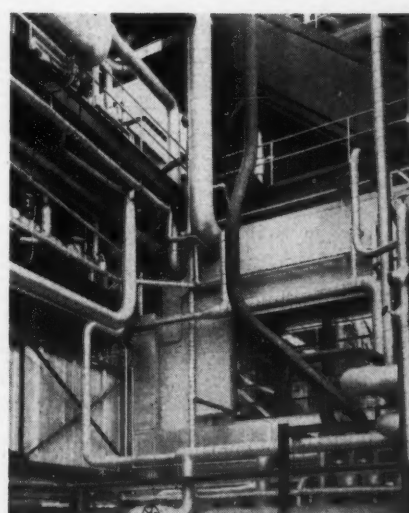
Engineered for outdoor lines — new, low-cost aluminum jacketing now used in 567 processing plants

The new kind of aluminum jacketing for insulated lines shown in the pictures on this page is Childers Aluminum Weatherproof Jacketing. Write for samples and full details, no obligation. Childers Manufacturing Co., Dept. LP-4, 3620 W. 11th St., Houston 8, Texas.

Under CMP regulations, Childers is a Class B product, the use of which is not restricted.



IN FOOD PROCESSING plants such as this Minute Maid Corp. unit at Plymouth, Fla., Childers Jacketing is useful for both indoor and outdoor installations. Its clean, shining appearance and ease of washing, are extra advantages.



IN POWER PLANTS—indoors and out—Childers Jacketing is an ideal material for protecting insulation. This is a big outdoor installation in the South. This jacketing needs no painting, and the gleaming aluminum surface makes for "good housekeeping" in any utility or institutional power station.



ALMOST ANYWHERE you have insulated lines in your processing plant, consider this specially engineered jacketing. It is flexible, easy-to-handle; yet it has the appearance values and the weather resistance that are inherent in aluminum. Write to address shown above for full details.

Shows how corporations deal with ideas offered them . . .

84 firms were queried on their method of lessening liabilities

When an unprotected inventor attempts to sell, give, or show a corporation a new idea or plan, package or product he creates a series of potential legal problems. In addition to this he involves the corporation in a ticklish public relations job. Even when the firm does manage to protect itself and the inventor under the law, it can quite easily make an enemy of the person or group offering it the new idea.

The Packaging Institute has made a survey of 84 firms who have had experience with this situation. Survey findings: 1) It is virtually impossible for the holder of an unpatented idea or product to get a hearing with a large corporation without signing a waiver. 2) Few inventors are familiar with this fact and few understand the reasons behind it. 3) Not many of the corporations themselves have evolved a satisfactory method of handling these new ideas. 4) Only about 40% of the corporations surveyed use special techniques for submissions.

Ordinarily, an outside idea is submitted to the department where it applies. This department must then work hand in hand with the legal department — usually in getting rid of the idea. In other cases the offer is handled within the legal department. In one case, the submitted idea is prudently sent to the typing and transcribing department where, presumably, nobody possesses the technical skill or acumen to evaluate it. Nearly all firms use form letters prepared by their lawyers which attempt to brush off the inventor.

(Copies of the survey report, "Advisory Service Report No. 294," issued in September 1950, are available; remit \$5.00 direct to Packaging Institute, Dept. CP, 342 Madison Ave., New York 17, N. Y.)

Charts insect control on vegetation

Two-page bulletin outlines insect control according to host plant, insects to be controlled with lindane, recommended concentrations, and suggestions for application. Information is presented in chart form and relates to formulations containing 1%, 20% 25%, and technically pure lindane.

Insecticide is purified form of benzene hexachloride containing at least 99% of active gamma isomer. Additional information discusses seed treatment for wireworm con-



Your own test proves

AMPCO*

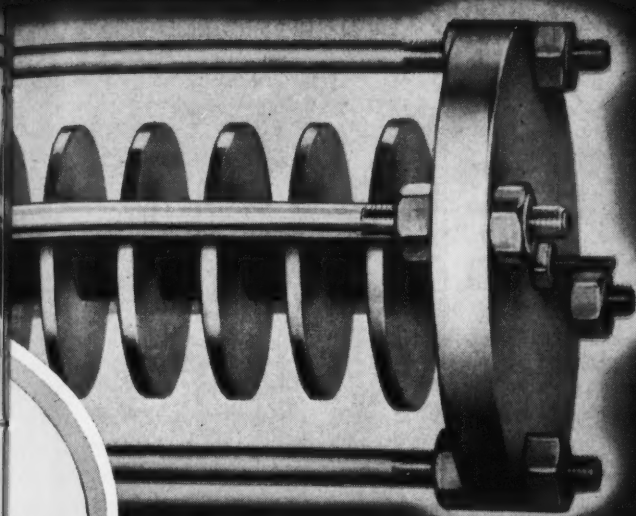
ALUMINUM BRONZES

Typical Applications in which Ampco Alloys have been used with Cost-Saving Success!

Absorption columns	Condenser tubes	Fittings — forged, cast	Perforated plate	Studs
Acetylators	Condenser tube sheets	Forgings	Pickling baskets	Sucker rod
Acid chain	Control valves	Fracturing columns	Pipe and fittings	Tanks
Agitators	Conveyors	Hangers	Plug cocks	Tools, safety
Autoclaves	Coolers	Heat exchangers	Pressure vessels	Towers
Baskets	Crystallizers	Heater coils	Pumps	Trays, fractionating
Bearings	Dephlegmators	Hocks	Reboilers	Tubes and tubing
Beater bars	Digesters	Injectors	Retorts	Valves
Belows	Ejectors	Instrument cases and elements	Rivets	Valves
Belt and nut	Evaporators	Knives	Safety tools	Welding rod
Brining rod	Evaporator tubes	Line hardware	Screens	Well tubing
Brine coils	Extractors	Mixer cases	Screws, conveyor	Wire
Bubble caps and trays	Fabricated assemblies	Mixers	Sludge burners	Woven wire cloth
Calandrias	Filters and filter screens	Pans, evaporator	Stills	
Condenser shells	Filter presses			

Chemical Agents and the Applicability of AMPCO Alloys

Acetate Solvents (Pure)	E	Carbon Dioxide	E	Hydrogen Sulfide	NR	Potash Crudes	E	Toluene or Toluol	E
Crude	E	Dry	E	Wet	F	Propane	E	Tri Chlorethylene	E
Acetic Acid	E	Wet	E	Dry	F	Shellac	E	Tri Sodium Phosphate	E
Crude	E	Carbon Disulfide	E	Lacquers and Lacquer	E	Seaps	E	Turpentine	E
Vapors	E	Caustic Soda	E	Solvents	E	Soda Ash	E	Varnish	E
Acetic Anhydride	NR	Chlorine	E	Lactic Acid	E	(Sodium Carbonate)	E	Vegetable Oils	E
Acetone	NR	Dry	E	Magnesium Chloride	E	Sodium Bicarbonate	E	Water	E
Acetylene	E	Wet	NR	Magnesium Hydroxide	E	Sodium Bisulfate	E	Fresh	E
Alcohols	E	Chloroform	E	Magnesium Sulfate	E	Sodium Carbonate	E	Salt (includes	E
Aluminum Fluoride	E	Chromic Acid	E	Mall Beverages	NR	Sodium Chloride	E	Polluted Harbor)	E
Aluminum Sulfate	E	Citric Acid	E	Mercuric Chloride	E	Sodium Cyanide	E	Xylene	E
Aluminum Hydroxide	E	Copper Sulfate	NR	Mine Water (Sulfate)	E	Sodium Hydroxide	E	Zinc Chloride	E
Ammonia Gas	G	Crude Oils — Sour	E	Molasses	E	Sodium Nitrate	E	Zinc Sulfate	E
Dry	NR	Esters	E	Monochlorobenzene	E	Sodium Peroxide	E		
Wet	NR	Ethers	E	Muriatic — Cold,	E	Sodium Phosphate	E	These ratings may usually	
Ammonium Chloride	NR	Ethylene Glycol	E	Commercial	E	Alkaline	E	be interpreted as follows:	
Ammonium Hydroxide	NR	Ethyl Sulfate	NR	Naphtha	E	Neutral	E	E — Excellent	
Ammonium Nitrate	F	Ferric Chloride	NR	Natural Gas	E	Acid	E	IPY Penetration	
Ammonium Phosphate	F	Ferric Sulfate	NR	Nickel Chloride	E	Sodium Silicate	E	<0.008"	
Ammonium Sulfate	F	Formaldehyde	NR	Nickel Sulfate	E	Sodium Sulfate	E	G — Good	
Amyl Chloride	F	Formic Acid	NR	Nitric Acid	NR	(Soda Cake)	E	IPY Penetration	
Asphalt	E	Freon	E	Nitrogen (Dry)	E	Sodium Sulfide	NR	<0.016"	
Barium Chloride	E	Furfural	E	Oleic Acid	E	Sulfur	NR	F — Fair	
Beer	E	Gasoline	E	Oxygen	E	Sulfur Chloride	NR	IPY Penetration	
Best Sugar Liquors	E	Gelatin	E	Paint Vehicles	E	Sulfur Dioxide	E	<0.008"	
Benzene or Benzol	E	Glucose	E	(Except Soya-Oil)	E	Dry	E	NR — Not Recommended	
Borax	E	Glycerine	E	Palmatic Acid	E	Wet	E	IPY Penetration	
Boric Acid	E	Hydrocarbon Gases	E	Petroleum Oils	E	Sulfuric Acid	E	Over 0.050"	
Brine	E	Hydrochloric Acid	E	Refined	E	10%	E	In using this data, it should	
Butane, Butylene	E	to 5%	E	Phenol	E	25%	E	be understood that these are	
Butadiene	E	to 10%	E	Pickling Acid	E	50%	E	results of specific tests and	
Butyric Acid	E	(see Muriatic)	E	(except Nitric Chromic)	E	Up to Boiling	E	are indicative of these con-	
Calcium Bisulfite	E	Hydrocyanic Acid	NR	Potassium Chloride	E	Sulfuric Acid Sludge	E	ditions under which the tests	
Calcium Hydroxide	E	Hydrofluoric Acid	E	Potassium Cyanide	NR	Tannic Acid	E	were run, and are a basis	
Calcium Hypochlorite	E	Hydrogen Fluoride (Dry)	E	Potassium Hydroxide	E	Tartaric Acid	E	for recommendation, but not	
Cane Sugar Liquors	E	Hydrogen	E	Potassium Sulfate	E		E	for guarantee.	
Carbolic Acid	E	Hydrogen Peroxide	F						



Fabricating Ampco Metal with Inert Gas Consumable Electrode Welding.

are a Practical Remedy for Your Corrosion Ailments

The success of Ampco aluminum bronzes in solving many different corrosion problems for a wide variety of applications is quickly evident from a glance at the tables on the opposite page.

But you may have a special problem of your own. You may want to make your own tests — prove to yourself that Ampco aluminum bronzes offer a money-saving solution.

Here's all you have to do: We have a complete stock of test specimens of different materials which can be mounted on racks. Several forms of racks are available for tests in atmospheric locations, pipe lines, tanks or other pressure vessels. Just write and ask for test specimens, but be sure to outline the conditions under which the test is to be conducted so that we can supply the most suitable form.

Here's another service that can help you. Sometimes repeated 60- to 90-day exposures are required. Our own technicians will work with you through the testing period, pilot plant and preplant operations. Write today.

*Tear out this coupon
and mail today!*

*Reg. U. S. Pat. Off.

Ampco Metal, Inc.

Milwaukee 46, Wisconsin

West Coast Plant,
Burbank, California

AMPCO

AMPCO METAL, INC., Dept. CP-4, Milwaukee 46, Wisconsin

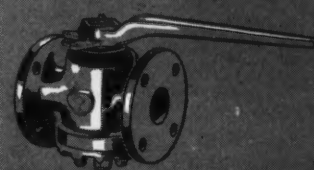
Send me information on the application of Ampco Aluminum Bronzes for corrosion-resistant service in the Process Industries.

Name.....Title.....

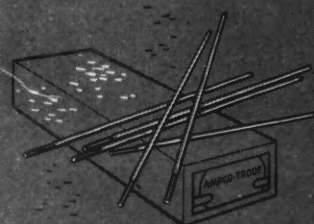
Company.....

Company Address.....

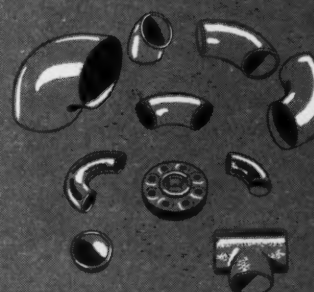
City.....(.....) State.....



Ampco Plug Valves



Ampco Bronze Electrodes



Ampco Pipe Fittings

IDEAS

trol and possible use of lindane in transplanting or setting water for cabbage maggot and tobacco wire-worm control.

Bul 206 is issued by Pennsylvania Salt Mfg. Co., Dept. CP, 1000 Widener Bldg., Philadelphia 7, Pa. When inquiring specify CP 1764 on handy form, pages 2 and 3.

Making tight valve for high-octane gasoline . . .

plug core covered with Hycar rubber layer

Atwood and Morrill Company, Salem, Mass., has developed a valve for high-octane aviation gasoline. Positive sealing, for both liquid and vapor, is assured by using a plug core covered with a layer of oil and chemical resistant Hycar American rubber.

Hycar was chosen for the job because it is resistant to most oils, greases, and chemicals. It resists most petroleum-based products.

The Tyler Rubber Company, Andover, Mass., performs the rubber-covering process for Atwood and Morrill by transfer molding a precision covering onto the core.

(Hycar rubber is made by B. F. Goodrich Chemical Company, Dept. CP, Rose Bldg., Cleveland, Ohio.)

Selling and servicing the industrial market

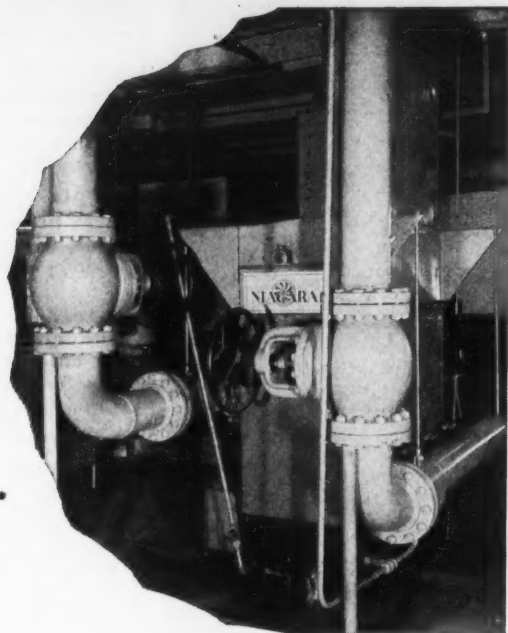
Pocket-size book of 255 pages surveys methods of contacting, selling, and servicing industrial customers. Manual is designed for sales engineer and organized in short, easily read articles. Author has sales engineering and equipment marketing background. Many of his articles have been published and reprints utilized by industrial concerns in metal-working field.

Book constitutes a potential aid to industrial concerns as a training manual for sales engineers. Author recognizes current demand for industrial equipment and machinery, and presents reasons for organizing sound sales program to cater to market prospects.

To obtain "Selling to Industry," remit \$3.50 direct to The Industrial Press, Dept. CP, 148 Lafayette St., New York 13, N. Y. When inquiring specify CP 1765 on handy form, pages 2 and 3.

For more information on product at left, specify CP 1766 . . . see information request blank between pages 2-3.

How
to get
drier
or cooler
gases . . .



NIAGARA AERO AFTER COOLER cools a compressed gas, or air, below the temperature of the surrounding atmosphere, thus preventing the condensation of moisture in your lines. The gas will contain only half of the moisture left in it by conventional methods. Even drier gas can be produced if you require it.

In working with controlled atmospheres of inert gases to prevent undesired reactions, this dryness of the gas at low cost is a great advantage. The cost of the Niagara method is low because it uses evaporative cooling, saving 95% of the cost of cooling water (and its piping and pumping). This direct saving of cost pays for the Niagara cooler in less than two years.

If you use compressed air to operate tools or pneumatic equipment you save much in water and oil damage to tools and equipment, and in water damage to materials by using the Niagara Aero After Cooler.

Write for a bulletin, or ask nearest Niagara Field Engineer if you have a problem involving the industrial use of air.

NIAGARA BLOWER COMPANY

Over 35 Years' Service in Industrial Air Engineering

Dept. CP, 405 Lexington Ave.

New York 17, N. Y.

Experienced Field Engineers in Principal Cities of U. S. and Canada

When inquiring check CP 1767 on handy form, pgs. 2-3

IDEAS

Flowsheets feature processing in metallurgical development

Data from operating plants features metallurgical developments incorporating manufacturer's flotation machines, unit flotation cells, and mineral jigs. Fifty different flowsheets in bulletin show processes on amalgamation, cyanidation, gravity concentration, and flotation. Each flowsheet includes description of ore treated, advantages of using this equipment, and comments on results obtained.

Bul 3800-B is issued by Denver Equipment Company, Dept CP, 1400 Seventeenth St., Denver 17, Colo. When inquiring specify CP 1768 on handy form, pages 2 and 3.

Electronically operated typewriter can reproduce up to 24,000 characters per min . . .

comprised of 47 characters, it prints a line at a time using ordinary paper, ribbon, hard-faced type

A simple printing mechanism, "The Flying Typewriter," capable of reproducing 24,000 characters per min, using ordinary paper, standard typewriter ribbon, and hard-face type was recently demonstrated by Potter Instrument Co., Great Neck, L. I.

A total of 47 characters comprising the alphabet, numerals, and special other symbols are employed. Major portion of the equipment, which prints a line at a time, is an electronic



Prints 24,000 characters per min, line at a time

serial-parallel storage unit that accepts information in coded pulse form from an external source such as a computer, magnetic tape, punched cards, communication lines, etc. Eighty channels corresponding to the characters per line may be serial or parallel fed according to input requirements. Information is alternately stored and extracted in these channels, completing this cycle once for each line printed.

Type is arranged in segments about the periphery of an 8" disc rotating in a horizontal plane at 300 rpm. Eighty hammers arranged in an arc parallel to the type wheel are electromechanically impulsed at appropriate times against the type faces according to the instructions from the electronic storage. The impression is registered on regular paper which is fed intermittently upward from a roll and conforms to the curve of the type wheel.

The electronic storage, which is essentially an extremely flexible shift register, may be used as part of a computer to perform addition, subtraction, division and multiplication. It may also be used to shift the information being printed to any selected columns.

Of particular advantage is the "Flying Typewriters" ability to be serially fed over a channel of telegraph band width. The printing can be controlled by the

Wherever
it's

HOT

specify

Sicon

NEW
IMPROVED
SILICONE-BASE
HEAT-RESISTANT
FINISH

Protects Stewart Warner's
New Saf-Aire Wall Furnace



Quality finish specifications for this heating unit called for a coating that would stand 500° and still retain its color and gloss—a temperature far above that incurred in normal operation. Ordinary heat resistant coatings failed. SICON Ivory and SICON Beige worked perfectly...just as SICON has solved so many other finish problems. Write for dynamic proof of SICON'S amazing stability under heat! New Brochure now ready.

Sicon

Silicone-Base Finish is
manufactured exclusively by

MIDLAND INDUSTRIAL FINISHES CO.

Waukegan, Illinois
ENAMELS · SYNTHETICS
LACQUERS · VARNISHES

When inquiring check CP 1769
on handy form, pgs. 2-3

CHEMICAL PROCESSING

input to be intermittent or continuous. Wide application is suggested where mass filing of information on business machine cards and magnetic or punched tape calls for convenient and extremely rapid access and translation. Among other applications are printing magazine address strips, invoices, statistical reports, and premium notices.

(Potter Instrument Co., Inc., Dept. CP, 115 Cutter Mill Rd., Great Neck, L. I., N. Y.)

**No slippage, impervious to oil —
timing belts are quiet . . .**

widths range from thread-thin drives in clocks to eight-inch belts for machinery

Complete efficiency and no signs of wear in spite of oil immersion and excessive temperatures tests for a year have been reported for timing belts which have been driving both internal and external cam shafts of automotive engines.

Widths now range from thread-thin drives for electric clocks to belts 8" wide transmitting 150 hp to machine tools. Belts have been made up to 15" in width. Positive grip, no slippage, and freedom from stretch are other qualities of the belt. Requiring no lubrication, the belt has successfully replaced gear trains.

Through weight reduction, increased efficiency, operation on fixed centers, and minimized maintenance and replacement, applications of the belt have been widely extended. Resistance to shock and sudden stops have made it practical as original equipment in machines which are commonly subject to sudden stalls.

(Timing belt is a product of L. H. Gilmer Company, Division of U.S. Rubber Company, Dept. CP, 7300 Keystone St., Philadelphia 35, Pa.)

**Dynel fabric work clothing
proves worth in chemical
and petroleum plants . . .**

resists corrosive conditions a year where cotton garments barely lasted an 8 hr shift

During its first year of commercial production, dynel textile fiber has gained acceptance in industrial uniforms and other work clothing, particularly for use in chemical and petroleum plants. Application mentioned is true because fabric woven from fiber can withstand splashing by most acid and alkalis without harm. In fact, its use in filters processing similar corrosives proves its resistivity.

In one plant which processes aluminum chloride, zirconium and titanium tetrachlorides, cotton work clothes were in tatters before a single 8 hr shift was over. Dynel garments under the same conditions have been worn almost a year without appreciable signs of wear.

Besides chemical resistance, dynel fiber is advantageous because it can be woven into warm fabrics for cold weather or cool for hot. It has exceptionally long laundry life, is unaffected by harsh soaps and detergents commonly used to clean industrial garments. Virtually shrinkproof, it dries quickly, requires no ironing, can be worn again in a few hours after washing.

(Dynel is the acrylic staple fiber developed by Textile Fibers Department, Carbide and Carbon Chemicals Co., a Division of Union Carbide and Carbon Corp., Dept. CP, 30 E. 42nd St., New York 17, N. Y.)

non-stop filtration

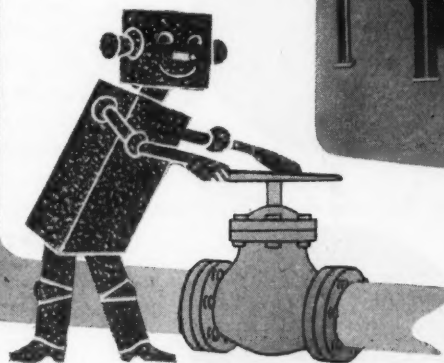
with ADAMS PORO-STONE TEAM

• Whether you choose the open filter aid precoat tank or the closed filter aid precoat system, the Adams Poro-Stone team takes your process liquids around the clock—week in and week out.

Complete package installations, ready to go on stream virtually at delivery, allow one filter to be drained, flushed clean, and precoat while the balance of the battery is in continuous service.

If cleaning or replacing clogged filter media stands in the way of making your process continuous, investigate Adams Poro-Stone CVF filters. They are available, with or without davit and swing bolts, in capacities and materials to suit most needs.

Bulletin 430 illustrates
both manual and auto-
matic operation.

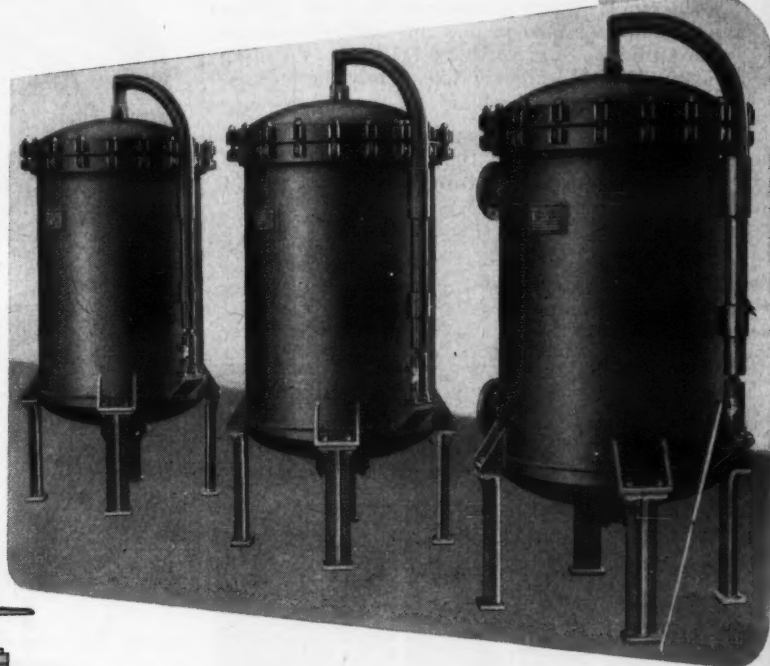


Write

243 E. PARK DRIVE, BUFFALO 17, N. Y.

R. P. ADAMS CO., INC.

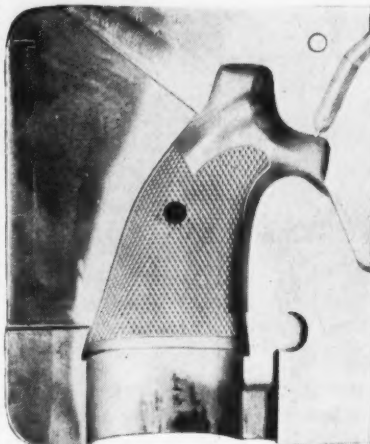
When inquiring check CP 1770 on handy form, pgs. 2-3



Wet blast of molds doesn't dull any sharp edges . . .

wet blast affords a fast and efficient method which is safe for glass and plastic molds

Wet blasting is becoming popular because it affords such rapid cleaning of glass and plastic molds without destroying close tolerances. View of plastic mold shown here (a pistol grip) has been cleaned of scale and discoloration by means of wet blasting. Apparently the knurling has been thoroughly cleaned without sharp points either being altered or destroyed.



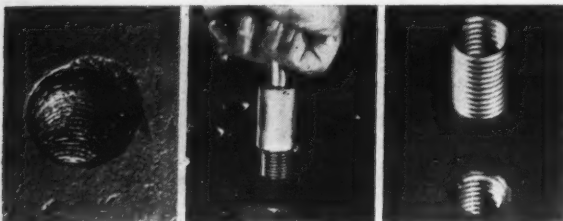
Wet blasting is particularly adaptable for any work needing precision cleaning. Severity of abrasion can be closely controlled. Recessed portion of this mold was cleaned in one and one-half minutes in the Liquamette — a wet blast machine. Cleaning medium was 1250 NE Liquabrasive. Only the recessed portion was exposed to the blast.

(Liquamette is built by American Wheelabrator & Equipment Corporation, Dept. CP, 1036 S. Byrkit St., Mishawaka, Ind. . . or for more information check CP 1771 on handy form, pages 2 and 3.)

Helical-wire thread inserts reduce down time and maintenance costs . . .

provide higher loading strengths and are not more resistant to wear and corrosion than original threads

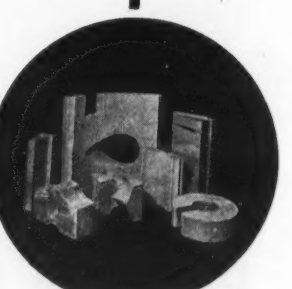
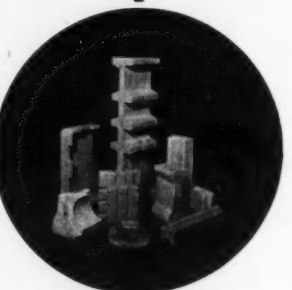
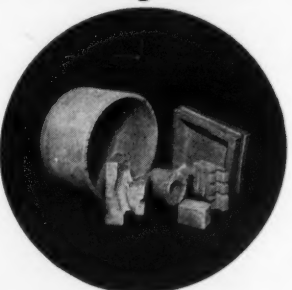
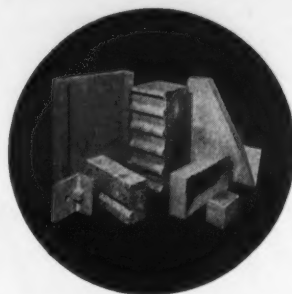
Time and cost savings of up to 80% have been reported in use of stainless steel helical-wire thread inserts as compared with other methods of restoring stripped or worn



After worn thread, left, is cleaned out and re-tapped, the helical wire is quickly and easily installed with an inserting tool. Reconditioned hole appears on right with helical-wire thread insert standing beside it

tapped threads. In addition, these inserts are stated to provide higher loading strengths and are more resistant to wear and corrosion than original threads.

In comparison with conventional thread repair operations, the wire-insert operation requires only: cleaning out of damaged thread, re-tapping of hole, and placing of wire-insert in the re-threaded hole. Because they are slightly



This series of advertisements is presented in the belief that there are chemical, metallurgical and other engineers who will find in some of the properties of Super Refractories by CARBORUNDUM the key to new or more effective uses of heat—and of refractories. We would like to talk over specific jobs with anyone who sees such possibilities.

Here's a refractory as rapidly as

Super Refractories by CARBORUNDUM possess a number of interesting properties not usually associated with refractory materials—properties that can be used to obtain unusual results.

Among these products are CARBOFRAX silicon carbide refractories. And one of their unusual characteristics is high heat conductivity. *At elevated temperatures, this property closely approximates that of nickel-chromium alloy steels.*

This characteristic has led to interesting applications. For example, it is not obvious that high heat conductivity is an advantage in checker brick—but it is. CARBOFRAX brick, when used in checker work, absorb—and deliver—two to five times as much heat as fireclay brick in a given period of time. You can recover more heat with fewer brick (and therefore

with smaller regenerators, less pressure loss.) Or you can get higher temperatures if you want them. Even one or two rows of CARBOFRAX brick will often make a lot of difference.

Among other applications where high thermal conductivity is important: Tubes and tile in recuperators. Muffles or hearths in heat-treating furnaces. Water-wall boilers, where CARBOFRAX shapes protect the tubes while transmitting heat to them. Even arc shields on circuit breakers, where CARBOFRAX plates help quench the arc by conducting heat from it.

In the box below you'll find other characteristics of this unusual material. Do any of these suggest applications to you? If so, we'd like to discuss them with you, either in person or by letter. Won't you write or call us at Perth Amboy, N. J.?

**These are some of the characteristics of
CARBOFRAX Super Refractories**

- They readily withstand temperatures up to 2800°F and under certain conditions up to 3200°F.
- Their resistance to abrasion is excellent. (An application: In slab-heating furnaces, CARBOFRAX skid rails have proved superior to alloy steel and water-cooled pipes.)
- They are far stronger, in all temperature ranges, than practically all other refractories.
- In most cases, they'll outlast ordinary refractories many times.
- The coefficient of expansion is very low—.000005 per degree C between 25° and 1400°C. Spalling is rarely experienced.
- They remain extremely hard at most furnace temperatures, and therefore offer no footing for clinker or slag accumulations.

that **CONDUCTS** heat chrome-nickel steels

Could you use this material to get ...

highly efficient vertical retorts?

more effective muffles and hearths?

more productive regenerative equipment?

better heat transfer in any process involving
either high or moderate temperatures?

CARBOFRAX refractories are available as brick and as special shapes molded to very close tolerances—including fitted joints, tubes, etc. They are not, however, a universal cure-all, and should be applied with caution where iron oxides or basic fluxes are present at high temperatures. Under such conditions, other CARBORUNDUM Super Refractories, particularly MULLFRAX electric furnace mullite or ALFRAX electrically fused alumina, will probably prove better fitted.

We have a booklet which outlines all Super

Refractories by CARBORUNDUM. You'll find information about refractory materials which, for example, are chemically inert, or highly erosion resistant, or light in weight, etc.

The "custom-made" qualities of these special purpose refractories may go hand-in-glove with your uses of heat. Why not check up? The coupon will bring you the story—or one of our engineers will be happy to talk over possibilities. We believe it could be mutually profitable.



THE CARBORUNDUM COMPANY
Refractories Division Perth Amboy, N. J.

"Carborundum," "Carbofrax," "Mullfrax" and "Alfrax" are registered trademarks which indicate manufacture by The Carborundum Company.

Dept. 5-42
Refractories Div., The Carborundum Co.
Perth Amboy, New Jersey
Please send your free booklet on Super Refractories

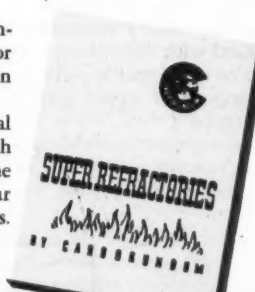
Name _____

Position _____

Company _____

Street _____

City _____ Zone _____ State _____



When inquiring check CP 1772 on handy form, pgs. 2-3

IDEAS

larger than hole in which they are inserted, the wires are self locking. It is reported that no amount of vibration or bolt tightening will loosen them.

Inserts are available in following thread classifications: 4-40 to 1 1/2-6 sizes in National and Unified Coarse; 6-40 to 1 1/2-12 in National and Unified Fine; and 1/8-27 to 1-1 1/2 in the pipe thread series. These inserts are supplied in 1, 1 1/2 and 2-diameter lengths.

(Courtesy of Heli-Coil Corp., Dept. CP, 1184 Shelter Rock Lane, Danbury, Conn.)

Brings scattered readings right to operator's desk in control room ...

selects from as many as 96 thermocouple points and indicates temperature right at the desk

Temperature readings from 96 processing points can be fed into a single control station which doubles as an operator's desk. Console is sixty inches wide, has single and double drawers as well as a center utility drawer just like ordinary desks.

Indicator unit is mounted in center as shown and flanked by key switches or push-buttons for selecting points to



be checked. Various combinations of "normally recorded and optionally indicated," or "indicated only" points are available and the desk can be laid out for 48 points or even less.

(Announced by Brown Instruments Div., Minneapolis-Honeywell Regulator Company, Dept. CP, Wayne & Windrim Aves., Philadelphia 44, Pa. . . or for more information check CP 1773 on handy form, pages 2 and 3.)

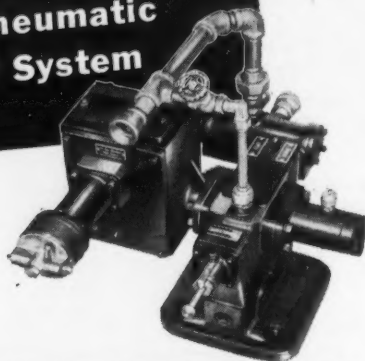
Dept. of Commerce publication lists technical reports

Government publication lists wide selection of technical reports on each of the following topics pertaining to the chemical industry: 1) chemicals and allied products, 2) agricultural chemicals, 3) plastics and plasticizers, 4) paints, varnishes and lacquers, 5) chemical engineering, and 6) miscellaneous chemicals. Recent patents for various chemicals and allied products are also included.

In addition to chemical information, publication includes technical report references on electrical machinery, fuels and lubricants, instruments, minerals and mineral products, metals and metal products.

Bibliography of Technical Reports, Vol 17, No. 2 is issued by Office of Technical Services, U.S. Dept. of Commerce, Washington 25, D.C.

How to add **POWER** to a Pneumatic Control System



FAST, POSITIVE OPERATION OF DAMPERS and LARGE VALVES

**with a 3-15 p.s.i. air signal
and Askania Hydraulic Power**

The Askania Remote Valve Positioner accurately positions a hydraulic cylinder in direct proportion to a pneumatic signal of 3 to 15 p.s.i. to within 1% of full cylinder stroke. At the same time, it produces an air signal that may be used to indicate the exact position of the valve.

The 3 to 15 p.s.i. signal is applied to a bronze bellows that positions the Askania Jet Pipe. The Jet Pipe governs oil flow to either end of the valve cylinder. As the valve moves, the feedback resets the hydraulic relay, so that for any air loading there is a definite, predetermined position of the valve. The Askania Remote Valve Positioner is sturdy, rugged and weatherproof, suitable for inside or outside installation. The Positioner can be supplied to react to air pressure failure in one of three ways: (1) to drive the valve open, (2) to drive the valve closed, or (3) to lock the valve in its intermediate position.

There is no hunting or cycling—a change in air pressure sends the positioning cylinder to a certain position and it stays there. Operation is fast and powerful. For example, a 3" x 8" cylinder will travel full stroke in 2 seconds at no load with a large capacity 3/4" booster, in 4 seconds at 50% of stalling load.

The Remote Valve Positioner is one of the several Askania hydraulic valve operators designed to add muscle to pneumatic control systems. Form I-87 describes the Air-Hydraulic Crank Cylinder; Form I-86 describes the Air-Hydraulic Slide Valve Positioner. Write for both papers.

ASKANIA REGULATOR COMPANY

A Subsidiary of General Precision Equipment Corporation

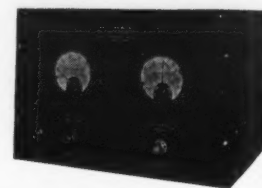
240 E. ONTARIO ST. • CHICAGO 11, ILL.

ASKANIA HY-PERFORMANCE **HYDRAULIC Controls**

When inquiring check CP 1774 on handy form, pgs. 2-3

Reads Mercury Manometer to Within 0.0005 Inch

Process
Instrumentation

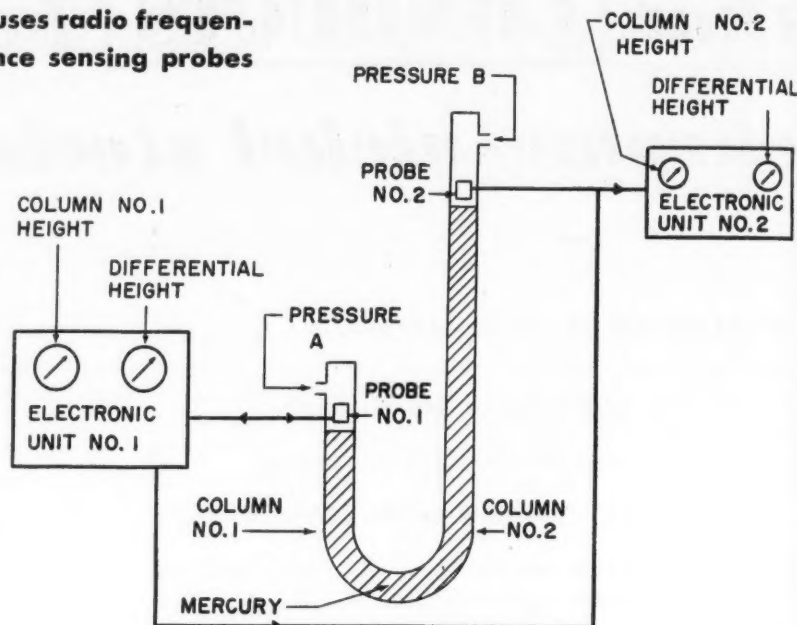


NBS-developed technique uses radio frequency oscillators and inductance sensing probes

NATIONAL Bureau of Standards has developed a technique of reading mercury manometers with mutual inductance probes. Most striking feature of the method is that it can be used to read differences of as little as 0.0005 inch between two mercury columns. But there are other features, too.

Units which make this hair-splitting measurement are small and as simple as many other manometer type instruments. The method, furthermore, does not require direct visual observation of the surface, hence the mercury column need not have transparent windows; also, readings can be made at a distance.

Above the mercury in each column a mutual inductance probe is mounted. Probe consists of a primary and a secondary coil. When primary coil is supplied with 480-kilocycle signal from regulated oscillator, some of the signal is picked up in the secondary coil. Since the amount of signal generated in the secondary coil de-



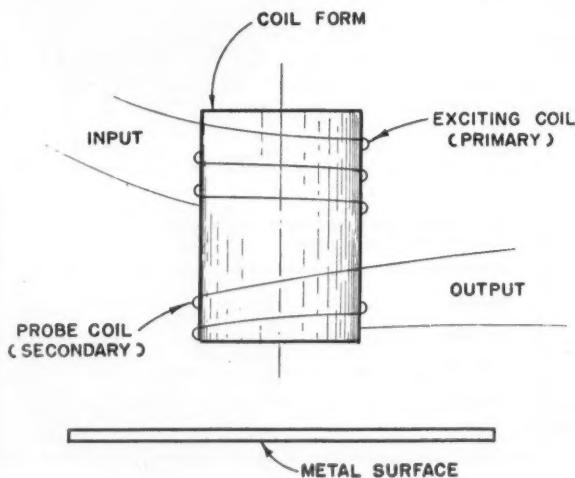
Complete measuring set up includes manometer, probes, electric units

pends on mutual inductance, secondary coil voltage can indicate the mercury level.

As the mercury rises closer to the probe it exerts a greater shielding effect on the secondary coil. This sapping of energy which would otherwise be transferred to the secondary shows up as a meter reading at the indicator units. Except for the probes themselves, instrument circuits are contained in two small cabinets. Each cabinet is connected to one of the probes and to the other cabinet. One center-zero microammeter in each cabinet is calibrated to indicate variations in height difference of the two mercury columns. When these meters read zero, probe-to-mercury distance is the same in both columns. Difference in column height can then be read from the position of the probes with micrometer or other precision devices.

With this form of null-indication, columns may be reset accurately to the same differential height. In order to make resetting easier, each cabinet also has a second meter which checks the individual probe-to-mercury distance. While differential measurement is so sensitive that it has a full range of only 0.04 inch, the individual meter handles level changes up to 0.3 inch.

(Summarized from information received from National Bureau of Standards, US Dept. of Commerce, Washington 25 D.C.)



Probe is a pair of coils aligned for mutual inductance

Metering Flow Kinetically Gives Linear Scales And Wide Range

Flow transmitted consists of rotameter-actuated pneumatic system which by-passes orifice

HERE is a pneumatic flow rate transmitter offering linear response over a wide range. In addition, its method of operation insures that lines are purged — there is a constant flow of liquid through the sensing element.

Principal parts of the V/A Cell are: variable area meter whose float position (inside a tapered tube) changes with flow, a balanced follower arm which is magnetically linked

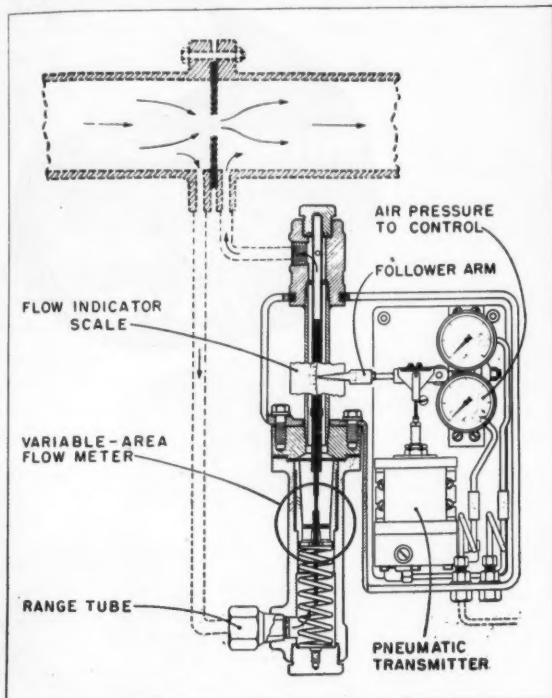


Diagram shows placement of parts and flow in flow-rate transmitter

to the float, and a pneumatic unit for transmitting flow measurement to remote instruments. In operation, the transmitter is connected across an orifice by means of flange taps. Pressure differential causes a portion of the main flow to by-pass through the transmitter. Movements of the rotameter float are passed on to the follower arm by two small alnico magnets. No pressure seals, bearings, or bellows are employed.

Pneumatic transmitter, of course, passes on a proportional air pressure to operate controllers, recorders, or other conventional pneumatic instruments. Range of the instrument can be selected for differential pressures up to 1400 inches of water (50 psi). By changing range tubes (see cut), differential range can be adjusted from 50 inches of water to 1400. Range itself covers about a ten-to-one span for usual values around 200 inches.

Among the other advantages are: transmitter is not prone to freezing in outside locations; no purge system is required; good linear-scale chart accuracy at low flows; unit can handle corrosive, relatively heavy liquids, or even

(Continued on next page)

Simplest Flow Measurement with the ALL-METAL Foxboro d/p Cell!



... gives fastest response,
longest sustained accuracy,
lowest installation cost

Simpler in design, simpler and much less expensive to install, far easier to maintain... the all-metal Foxboro mercury-less d/p Cell offers greater speed of response, permitting closer flow control, than has ever been possible before. Its negligible displacement and corrosion-proof construction of Stainless Steel eliminate usual maintenance problems, even in service on highly corrosive or viscous fluids previously considered unmeasurable.

The Foxboro d/p Cell measures differential pressure by the force-balance principle and transmits pneumatically to indicating, recording, or controlling receivers. Small, compact, weighs as little as 19 lb. Ranges: from 25" to 800" H₂O. Working pressure ratings up to 4000 psi. Steel or stainless steel construction. Inherent over-range protection. Easy in-the-field calibration and range changes. Optionally available with pre-assembled manifold piping shown in photo above.

Thousands of d/p Cells now in use throughout industry, with many repeat orders now on our books, indicate the wide acceptance and successful performance of this revolutionary development for the measurement of liquid, steam, gas, or air flow. Write for detailed Bulletin 420. The Foxboro Company, 1904 Neponset Avenue, Foxboro, Massachusetts, U. S. A.

- No seal pots
- No mercury
- No leveling
- Installed at the orifice

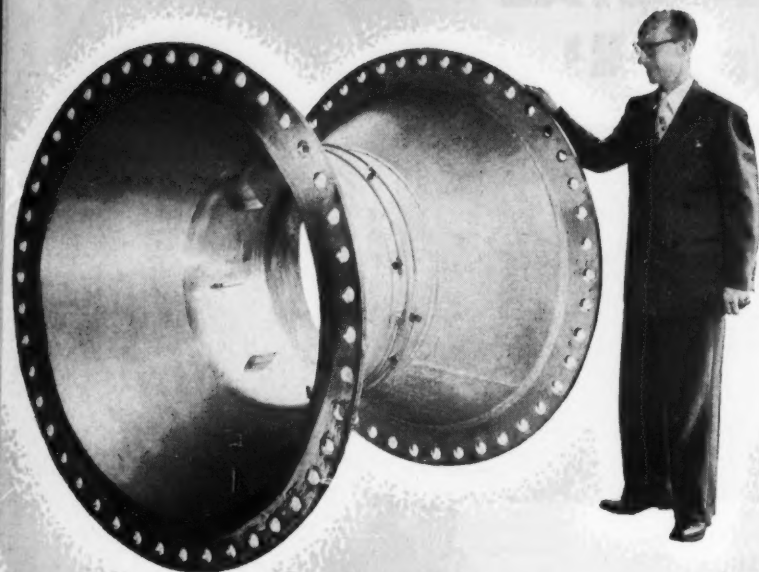
FOXBORO RECORDING · CONTROLLING · INDICATING
INSTRUMENTS
FACTORIES IN THE UNITED STATES, CANADA, AND ENGLAND

When inquiring check CP 1775 on handy form, pgs. 2-3

FOSTER FLOW TUBES

(Gentile Patents)

Are EASIER to Install



This 48" Foster Type D Flow Tube, of lightweight fabricated steel construction for measuring flow of air in the discharge line of a reactor air system, flanged for 125#, is only 48" in length between flanges and weighs only 1350 lbs.—many feet shorter and several thousand pounds lighter than a conventional venturi.

In addition to being considerably easier to handle, the Flow Tube takes up but little space, and needs no straight entering run for normal accuracy, except before and after valves in which case eight diameters are required upstream and five diameters downstream. This means that the Flow Tube can be installed without expensive vaults or housing in any readily accessible point where flow conditions are reasonably steady.

This Flow Tube, one of many for top priority defense projects, was designed to handle 29,300 SCFM at 10.12 PSIA at 238°F with a maximum head loss of 2" H₂O and with an accuracy within $\pm 1\%$ of the calibration curve furnished with it.

Foster Flow Tubes are made for a wide range of services metering the flow of liquids and wet or dry gases. They are available in all commercial pipe sizes, with screwed or flanged connections, bell and spigot, or welding ends, and of any materials required by the service. For further information on Flow Tubes, ask for Bulletin FT-101; and if you would like specific recommendations, please give us processing and installation details of your metering requirements.

FOSTER ENGINEERING Company

835 Lehigh Avenue • Union, N. J.

PRESSURE REGULATORS... RELIEF AND BACK PRESSURE VALVES... CUSHION CHECK VALVES
... ALTITUDE VALVES... FAN ENGINE REGULATORS... PUMP GOVERNORS... TEMPERATURE
REGULATORS... FLOAT AND LEVER BALANCED VALVES... NON-RETURN VALVES... VACUUM
REGULATORS OR BREAKERS... STRAINERS... SIRENS... SAFETY VALVES... FLOW TUBES

When inquiring check CP 1776 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

(Continued from preceding page)
emulsion; its range can be changed to fit new requirements; it is compatible with standard pneumatic instruments.

Float and float chamber are 316 stainless, can be used at 650°F. High pressures can also be accommodated — one model is built for 1040 psi @ 350°F, 1200 psi @ 100°F, another stands 2600 psi @ 350°F, 3000 psi @ 100°F.

Three indicators on the transmitter show 1) flow rate, 2) supply pressure, and 3) output pressure. Transmitter consumes about 0.15 cfm in operation. Transmitted signal pressure runs from 3 to 15 psig. Finished in light-gray hammettone, unit measures 9 x 11 x 7-inch. It is moisture- and fume-proof.

(Developed by Fischer & Porter Company, Dept. CP, Hatboro, Pa. . . or for more information check CP 1777 on handy form pages 2 and 3.)

Produces linear record of process variables with no lag . . .

three hour record is viewed through window of graphic panel recorder; past record can be pulled out

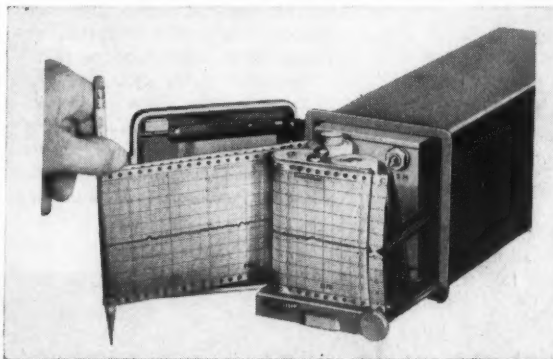
Uses: For recording the usual process variables.

Features: Strip-chart record is linear in the variable scale, and time coordinate lines are straight.

Description: Autronic recorder is a graphic panel miniature with a face only $4\frac{3}{8}$ x 5 inches. It is electronically operated, producing almost instantaneous response. Null-balance principle accounts for the good accuracy of the instrument. Unbalance between the sensing element output and the balancing transformer drives the pen — fast enough to traverse the three-inch chart in one-half second.

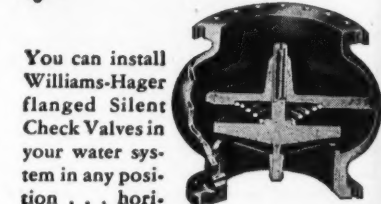
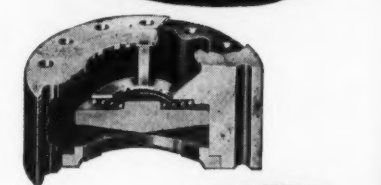
In order to keep the very fast response and sensitivity from catching all the minor fluctuations, the unit is equipped with a three-speed response switch. This circuit provides various degrees of damping, thereby slowing down pen movement. Sensitivity of the recorder is unimpaired by slower response.

Writing surface for the pen is slightly bowed (eight-inch radius) to conform to the arc of the pen around its pivot. This eliminates complex mechanical linkages and produces a truly linear record. Unit continues to operate even when pulled out three inches from normal mounting position. This allows for re-inking of the



Past record can be pulled out for inspection without stopping the recording action

pen or inspection of past record without interruption. Small graphic-panel face of the recorder shows a record of the past three hours. As shown in illustration, prior



You can install Williams-Hager flanged Silent Check Valves in your water system in any position . . . horizontal, angular, vertical with flow upward or downward . . . and put an end to costly and annoying water hammer. Easy to install or reseal without special tools, they are durable and compact with easy accessibility and low friction. Available in standard pipe sizes from 1" to 20". Investigate the many features of these valves . . . and save!



Write for Bulletin WH 831

Write today for your copy of this informative bulletin on Water Hammer, its Cause, Effect and Control in Piping Systems.

THE WILLIAMS GAUGE CO.
3015 PENNSYLVANIA AVE. • PITTSBURGH 33, PA.

When inquiring check CP 1778 on handy form, pgs. 2-3

CHEMICAL PROCESSING

record can be examined by pulling recorder unit out three inches and extending the chart. Chart speed is one inch per hour; standard chart lasts 30 days at this speed. Besides ordinary linear charts, Autronic can use square-root graduations, or special charts calibrated in terms of the variable.

(Autronic Instruments are built by Swartwout Company, Dept. CP, 18511 Euclid Ave., Cleveland 12, Ohio . . . or for more information check CP 1779 on handy form, pages 2 and 3.)

Same valves control flow of superheated steam and liquid N₂ . . .

construction permits operation at excessive temperatures; pressure range is very broad.

Uses: Both on-off and throttling types are available for control service with a wide range of liquids. Typical examples:

- liquid nitrogen @ —325°F, 3000 psi
- red fuming nitric acid (room temperature)
- superheated steam @ 1000°F

Manufacturer also produces valves for liquid nitrogen service at —325°F, 6500 psi

Features: Designed for extreme temperature and pressure, valves are also recommended for corrosive and erosive materials.

Description: Two Control Valves, Models 1570 and 1580, are designed for on-off and throttling service, respectively. Single seated valves embody an external self-balancing arrangement which provides a balanced

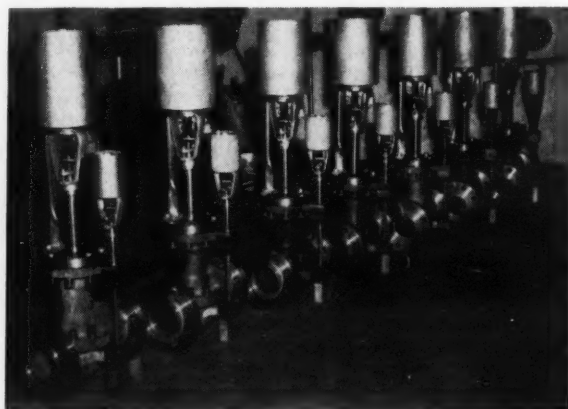


Photo shows on-off valves in service

valve effect in operation. This allows smooth operation at high pressure differentials and still retains bubble-tight shutoff.

Valve design also allows servicing without removing it from the line. In severe corrosive service, lower half of the valve body may be replaced with minimum down time. Construction is of the split body, single seat type. For extreme temperature service valves can be fitted with Teflon seat seals and radiation fins.

Model 1570 (on-off) is electro-pneumatic. Model 1580 is operated by pneumatic diaphragm.

(Designed by Annin Company, Dept. CP, 3500 Union Pacific Avenue, Los Angeles 23, California . . . or for more information check CP 1780 on handy form, pages 2 and 3.)

Check these features

OF THE

BRISTOL DYNAMASTER

—the electronic master-mind for your measuring, recording and controlling problems

- ✓ Continuous-balancing electronic circuit responds instantly to minute changes
- ✓ All types of electric and air-operated controllers offered
- ✓ Available as a self-balancing bridge or potentiometer
- ✓ Trouble-free operation
- ✓ Electronic component uses vacuum tubes available at any radio supply house

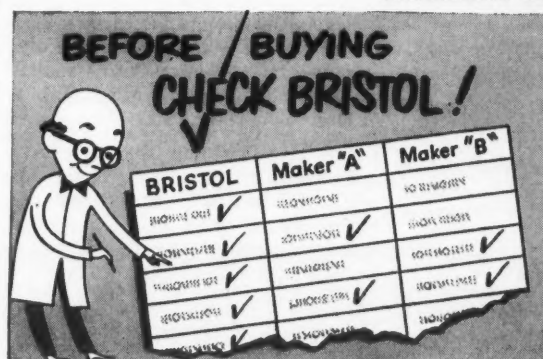
- ✓ Full-scale pen travel in 7, 3 or 3/4 seconds
- ✓ Chart speeds from 1/4 in. per hour to 7200 in. per hour
- ✓ Multiple recorders up to 16 points
- ✓ Components interchangeable and easily replaced on all Dynamaster models
- ✓ Immune to most vibration or shock
- ✓ Exceptionally unaffected by stray currents (1000 to 1 discrimination).

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FOR DETAILED PROOF of the sensitivity, versatility and reliability of the electronic Dynamaster, use the coupon or write for Catalog P1245.

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AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



THE BRISTOL COMPANY
141 Bristol Road
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Please send catalog giving details of Dynamaster performance to:

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COMPANY _____

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When inquiring check CP 1781 on handy form, pgs. 2-3



Thermometers

in all forms—ranges—stem lengths—connections

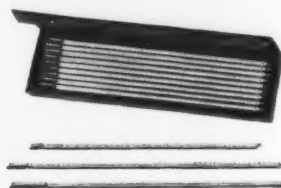
Whether your requirement calls for certified laboratory thermometers . . . or rugged all-metal industrial types . . . or thermometers for remote reading . . . you'll find exactly what you require in the Weston-TAG line—the most comprehensive line of quality thermometers ever offered by ONE manufacturer. Literature on request. WESTON Electrical Instrument Corporation, 617 Frelinghuysen Avenue, Newark 5, New Jersey.

Laboratory



ALL-METAL

—have readable, dial-type scales and corrosion-resisting stainless steel stems—stem lengths from 2" to 24"—ranges from low as -100°F . to high as 1000°F .—accuracy $\frac{1}{2}$ of 1% of thermometer range.



GLASS

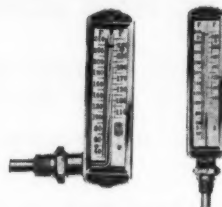
—certified sets of ASTM Testing thermometers with overlapping ranges in protective case. Ranges from -36°F . to high as 760°F . Also precision and standard etched stem thermometers for general testing.

Industrial



ALL-METAL

—provide unmatched readability and durability—accuracy within 1% of thermometer range. Available in all types, ranges and stem lengths ($2\frac{1}{2}"$ to $72"$) for all requirements.



GLASS (Metal Case)

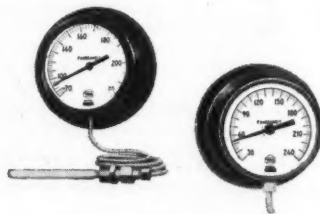
—available in all forms, all ranges, stem lengths and connections. Accuracy within one scale division. Also submarine types, metal and cupcase thermometers.

Remote Reading



ELECTRICAL

—resistor bulb sensing element permits mounting indicator any distance away from point of measurement. Multiple remote readings also possible by use of selector switch and several bulbs.



PRESSURE ACTUATED

—for remote reading, in 5, 6 and 8" dial sizes. Ranges from low as -325°F . to high as 1000°F . Accuracy one scale division unaffected by vibration or severe shock. Cases of iron, brass, or plastic.

WESTON

Temperature Instruments

— TO INDICATE — RECORD — CONTROL

When inquiring check CP 1782 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Plugging and flooding both eliminated in pen . . .

platinum-tipped instrument pen is capillary fed

Redesigned pen is available for manufacturer's strip chart recorders. Besides stopping flooding, it wears longer due to lower pressure on the paper, can easily be cleaned on disassembly, and fits on standard pen carriages.

Design is centered around a capillary tube which draws the ink from the reservoir. Positioning of this tube holds effective supply level below the level of pen itself. This is the mechanism of non-flooding operation.

Clamped to the reservoir is a metal carrier to which the capillary neck is attached. Tip, which screws into a threaded connector on the neck, is equipped with a knurled grip. When unscrewed it can be cleaned by passing a small wire through it from the rear. Entire pen assembly can be removed, too. It is held in place by mounting ears which slip over the pen carriage bracket.

(Brown Instrument Div., Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Windrim Aves., Philadelphia 44, Pa. is the maker . . . or for more information check CP 1783 on handy form, pages 2 and 3.)

Yellow glass, mercury, stainless scale in thermometer . . .

wooden-handle model to stand rough use on the job

Uses: Checking process temperatures in kettles, vats, tanks, or other open vessels.

Features: Glass thermometer is mercury filled and has a yellow glass backing to make reading easier.

Description: This Kettle Thermometer has a range from 20 to 220°F . Encased in the unfinished hardwood handle are the thermometer itself and a stainless steel scale. Deeply etched figures and graduations of the scale are filled with a durable black pigment.

Large mercury bulb of the thermometer is protected by a metal cup perforated to drain. Special mounting of the tube and scale is reported to compensate for temperature changes. Overall length is 18 inches.

(Product of the H-B Instrument Co., Dept. CP, 2633 Trenton Ave., Philadelphia 25, Pa. . . or for more information check CP 1784 on handy form, pages 2 and 3.)

New 52-Page Thermostat Catalog shows you . . .



How To Get Closer Temperature Control At Lower Cost

This Fenwal catalog is the most comprehensive guide to thermostat application ever published. It shows you: **WHY** Fenwal THERMOSWITCH® thermostats respond at the preset temperature you want (between -100°F and $+1500^{\circ}\text{F}$) within the desired operating differential (can approach 0.1°F in a well-designed system).

HOW to choose the right THERMOSWITCH unit from the ten standard types for controlling temperatures of solids, liquids or gases.

WHERE to apply THERMOSWITCH controls in relation to heating elements in ovens, incubators, stills, dryers and other equipment.

WHEN special modifications may be added to standard THERMOSWITCH units to fit specific conditions.

HOW MUCH standard THERMOSWITCH thermostats and special modifications cost. You'll be surprised at the low list prices.

SEND FOR YOUR FREE COPY of this new Fenwal catalog (No. 400) today. Fenwal, Incorporated, 244 Pleasant St., Ashland, Mass.



THERMOSWITCH®

Electric Temperature Control and Detection Devices

SENSITIVE . . . but only to heat

When inquiring check CP 1785 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESS INSTRUMENTATION

Times to hundredths of a minute and operates scalars . . .

electrically powered unit is only $3\frac{3}{8} \times 3\frac{5}{8} \times 4$ " Model T100 Timer is designed to measure elapsed time in one-hundredths or minutes for accurate radioactive sample counting. It will operate scaling instruments.

Unit operates on 110v 60 cps and has its on-off switch



in the power cord. Other control is a reset wheel which allows count to be returned to zero after run. Timer has a cast aluminum body with a scuff-proof gray hammertone finish. It measures $3\frac{3}{8} \times 3\frac{5}{8} \times 4$ inches.

(Built by Nuclear Instrument & Chemical Corporation, Dept. CP, 229 W. Erie St., Chicago 10, Ill. . . . or for more information check CP 1786 on handy form, pages 2 and 3.)

Tiny resistance elements respond to temp changes rapidly . . .

resistance-temperature curve is same as that of Army-Navy standard elements

Temperatures in the range from -100 to 350° can be conveniently measured with one of several of these resistance elements. Heat-sensitive portion of the element is a fine nickel wire imbedded in bakelite or nitrocellulose and paper. Varying in size from $\frac{1}{8} \times \frac{3}{4}$ inch to $\frac{1}{2} \times 1\frac{1}{2}$ inch, these elements are cemented directly to a surface whose temperature must be read.

Types PN-1 and PN-2 Stikon elements have the wire element bonded into a nitrocellulose cement and paper wafer. They are attached with cement to the hot surface. Nominal resistances are 50 and 200 ohms, respectively. Manufacturing tolerance is plus or minus two percent, though each element is accompanied with its exact reading for compensation. When used with 16 ohms resistance in series, these elements give an output which follows standard set in Army-Navy Specifications (MIL-B-5495). They are serviceable from -100 to 200°F , or intermittently to 250°F .

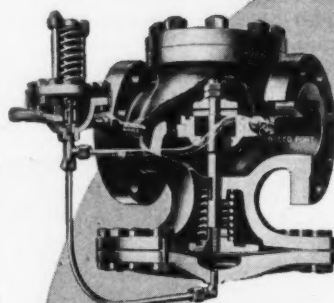
Types BN-3 and BN-4 are bakelite wafers again having 50 and 200 ohms nominal resistance, respectively. They are similar to the other elements, but they have an extended range (to 300°F , intermittent to 400°F).

(Stikons are manufactured by Ruge-deForest Inc., Dept. CP, 84 Massachusetts Ave., Cambridge 39, Mass. . . . or for more information check CP 1787 on handy form, pages 2 and 3.)

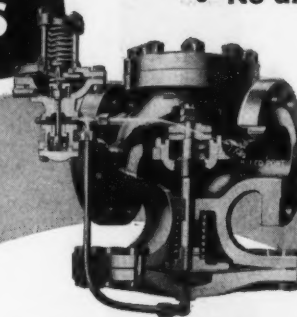
SAVE WITH SPENCE on all these jobs

Here are a few reasons why Spence Regulators give you accurate regulation and long, trouble-free life:

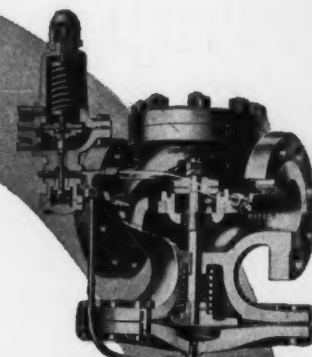
- Single-seat Packless Construction
- Large Balanced Metal Diaphragm
- Sensitive Pilots
- SECO Metal Seats and Discs
- Springs out of path of steam
- No dismantling for inspection



BACK PRESSURE CONTROL—Wide selection of sensitive pilots to meet exacting requirements. Initial pressure closing, guaranteed to shut tight. Packless construction, metal diaphragms.

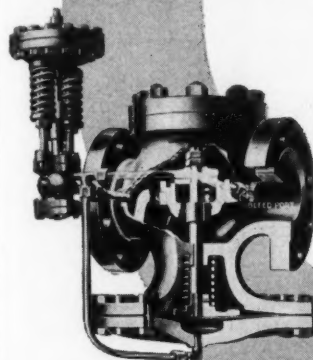


PRESSURE REDUCING—Self-operated, dead-end regulators powered by large, frictionless, metal diaphragms. Sizes $\frac{1}{4}$ in. to 12 in. Pressures to 600 psi 750 F.

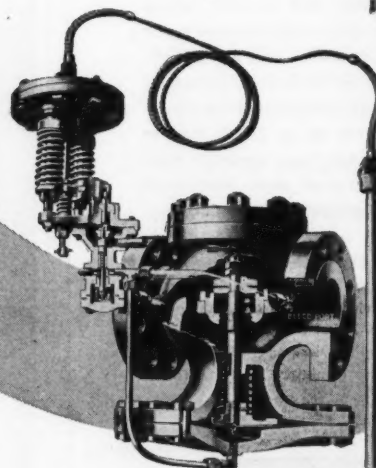


DIFFERENTIAL PRESSURE—Accurate control of delivery pressure at a constant, adjustable differential from 3 to 150 psi above another source of fluid pressure.

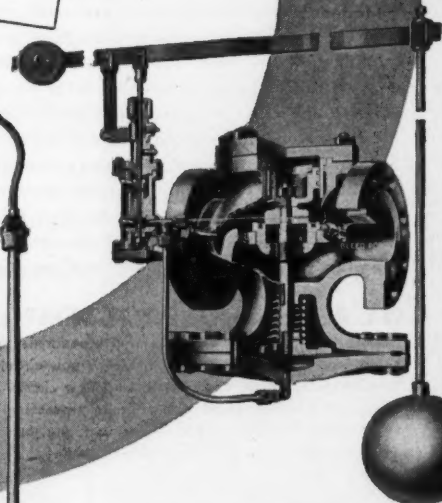
WRITE FOR BULLETIN 350 for complete details on Spence's line of automatic regulating valves



PUMP GOVERNOR—Constant or excess pressure control for steam pumps. Steam pressures to 600 psi 750 F, pump discharge pressures to 2000 psi.



TEMPERATURE REGULATING—Combined temperature and pressure control. No separate reducing valve required. Shuts tight, will not wiredraw or be damaged by overheating. Sizes to 12 in.



LEVER OPERATED—Pilot lever for connection by cable or mechanical linkage to floats or other devices. Slight actuator motion opens and closes main valve.

SPENCE ENGINEERING COMPANY, INC.
WALDEN, NEW YORK

Spence

When inquiring check CP 1788 on handy form, pgs. 2-3

PROBLEM:

PUMPING CORROSIVE CHEMICALS?

POSITIVE, AUTOMATICALLY-REGULATED FEED?

CONTAMINATION?

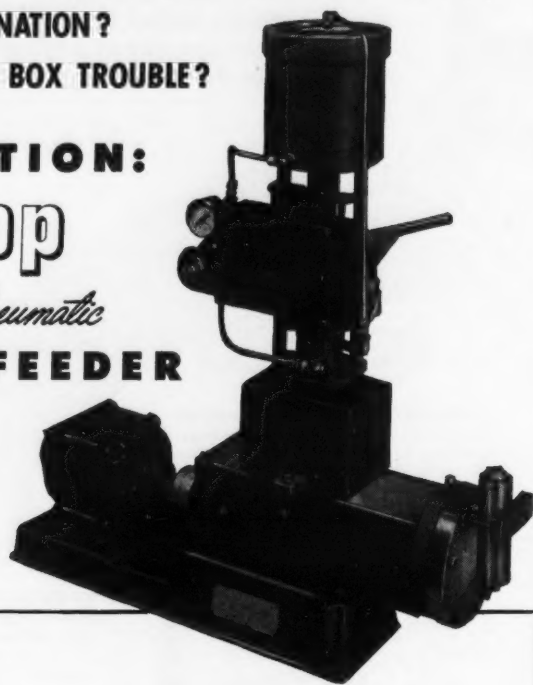
STUFFING BOX TROUBLE?

SOLUTION:

Lapp

Auto-Pneumatic

PULSAFEEDER



Chemicals successfully being handled include gum and sludge inhibitors, metal deactivators, anti-oxidants, dyes and stabilizers. Also those for boiler water or processing water treatment—concentrated sulphuric acid, sodium sulphite, filter aid slurries, liquid caustic. For the Lapp Pulsafeeder is the positive-displacement pump for controlled-volume pumping of liquids which depends on no stuffing box or running seal—avoids contamination by an hydraulically-balanced diaphragm which isolates pumping mechanism from chemical being handled. Pumps against pressures up to 2,000 lbs., at constant pumping speed—variable flow results from variation only in piston-stroke length. Auto-Pneumatic control uses instrument air pressure responding to any instrument-measurable variable.

GOT A SPECIAL PROBLEM? Every month we hear about applications to which the Lapp Pulsafeeder is the long-awaited answer. A newly-issued bulletin, No. 300, will tell you about our pump and its characteristics, with typical applications and flow charts. A Pulsafeeder Inquiry Data Sheet, on which you can outline your processing requirement, will bring an engineering recommendation. Write us today. Lapp Insulator Co., Inc., Process Equipment Division, 558 Maple Street, Le Roy, N. Y.

Lapp

Auto-Pneumatic

PULSAFEEDER

When inquiring check CP 1789 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

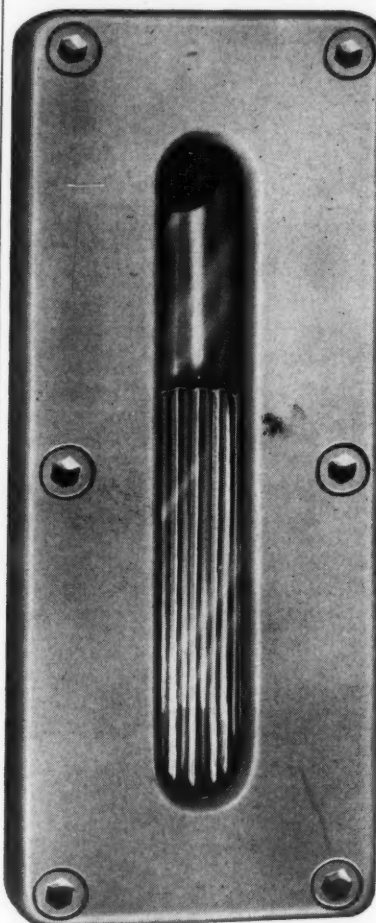
**Flush sight gage
mounts without
welding . . .**

4 1/2 to 12 3/4-inch glass is readable at angles of 15°

Uses: Sight gage for liquid level in tanks and other vessels. Also indicates condition of contents.

Description: Reflex Sight Gage projects only slightly from the vessel it is attached to. Installation, however, does not require any cutting or burning. When installed, it permits reading of liquid level from angles of 15° from both the horizontal and vertical.

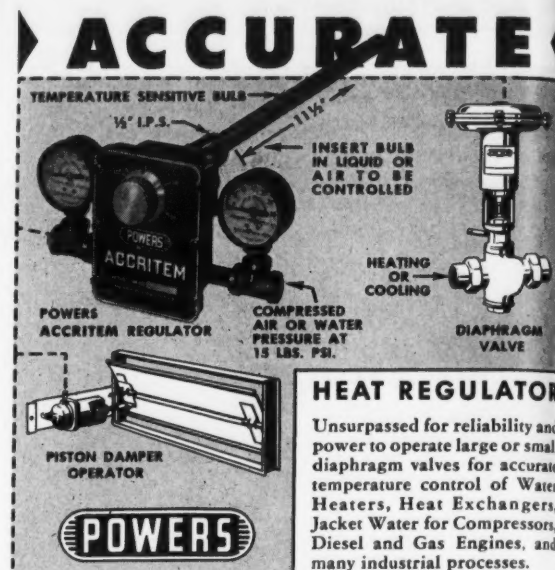
Gage is designed for vacuum and pressure applications not exceeding 15 psi. Useful temperature range



With transparent glass or fluted pyrex extends to 500°F. Standard visible length is 4 1/2 inches, but on special order glasses as long as 12 3/4 inches are made. Gages are usually made in cast iron, cast stainless, or enameled cast iron. Transparent glass or fluted pyrex is used.

(Produced by The Rucker Manufac-

ACCURATE



HEAT REGULATOR

Unsurpassed for reliability and power to operate large or small diaphragm valves for accurate temperature control of Water Heaters, Heat Exchangers, Jacket Water for Compressors, Diesel and Gas Engines, and many industrial processes.

IMPORTANT FEATURES

- Adjustable Sensitivity and over-heat protection.
- Calibrated Dial temperature adjustment.
- Ranges 50 to 250° F. and 150 to 350° F.
- Simple, Rugged Construction withstands vibration and insures many years of reliable service. Requires 15 lb. supply of compressed air or water for its operation.
- Small Size — regulator head is only 2 1/4" x 3 3/4". Write for Bulletin 316. (a76)

THE POWERS REGULATOR CO., 3437 Oakton St., Skokie, Ill.

60 Years of Temperature and Humidity Control • Offices in Over 50 Cities

When inquiring check CP 1790 on handy form, pgs. 2-3

IT CHECKS ITSELF!



TYPE LSI

Inexpensive, exacting temperature control combined with continuous indication of the controlled temperature. Control temperature may be changed by turning a thumb screw. Actuates electric heaters, motors or solenoid or motor valves. Catalog No. 1025.

SARCO Electric

TEMPERATURE CONTROL

288

SARCO
SAVES STEAM

IMPROVES PRODUCT QUALITY AND OUTPUT

SARCO COMPANY, INC.

Represented in Principal Cities

Empire State Building, New York 1, N. Y.

SARCO CANADA, LTD., TORONTO 5, ONTARIO

When inquiring check CP 1791 on handy form, pgs. 2-3

CHEMICAL PROCESSING

A U-TYPE *Absolute* PRESSURE GAUGE BY **MERIAM**

**Measuring directly in inches
or millimeters of mercury**

This new instrument is proving notably popular in various industries for the measurement of absolute pressures from one millimeter of mercury to the equivalent atmospheric pressure.

It is a U-tube manometer with one leg sealed and filled with mercury; the other open tube leg connects to the source of pressure to be measured. The tube is removable and can be easily replaced, when necessary, with another tube, mercury filled, shipped directly to location.

Of simple design—no cams, gears, levers—the Meriam U-Type Absolute Pressure Gauge is accurate and dependable. It is strongly built for lasting service. The gauge head fastens to the body by a single wing nut. Available in wall or flush front mounting styles. The wall mounted unit, illustrated, is Model C-1142 WM and is fully described in catalog sheet C-1142 WM—available upon request.

**THE MERIAM
INSTRUMENT CO.**

10940 MADISON AVENUE
CLEVELAND 2, OHIO

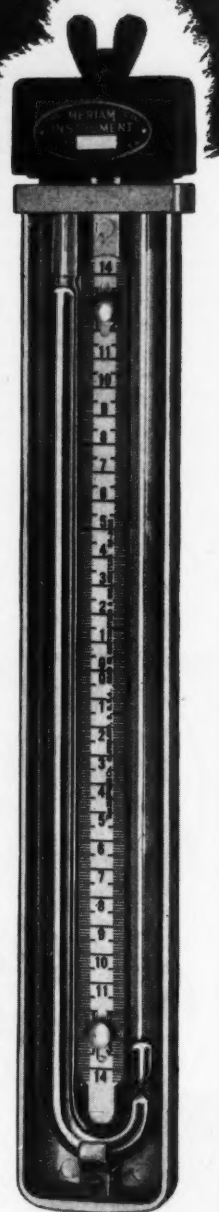
WESTERN DIVISION: 4760 E. OLYMPIC
BLVD., LOS ANGELES 22, CALIF.
IN CANADA: PEACOCK BROS., LTD.,
MONTREAL

MERIAM

Instruments

ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT
OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES



PROCESS INSTRUMENTATION

turing Company, Dept. CP, 4516 Hollis St., Oakland 8, Calif. . . . or for more information check CP 1793 on handy form, pages 2 and 3.)

Describes instruments for testing paper

Instruments for testing various properties of paper are illustrated and described briefly in folder. Covering 18 in all, the folder includes such instruments as an electro-hydraulic tensile strength tester, an Elmendorf tearing tester, Clark softness-stiffness tester, paper mill (dryer roll) pyrometer, penescope (to test paper for resistance to penetration by water, oils, inks, solutions of electrolytes and other liquids), portable pH meters, and a Carrier size tester for checking sizing in paper by following the penetration of distilled water through specimen.

Leaflet P-500 is issued by the Thwing-Albert Instrument Co., Dept. CP, Penn St. and Pulaski Ave., Philadelphia 44, Pa. When inquiring specify CP 1794 on handy form, pages 2 and 3.

Counts gammas of Iodine-131 and other "weak" isotopes, yet it is standard . . .

counter is highly efficient because of multiple baffles

Uses: Counting gammas of weak isotope tracers like Iodine-131.

Features: Special construction employing multiple baffles inside the heavy stainless sleeve of the tube makes it about six times as efficient as normal mica end-window tubes.

Description: TGC-8 Mica End-window Geiger tube is designed for rapid accurate counting of gammas from isotope tracers. It has been specially designed and constructed for high end-on efficiency.

Geiger tube has identical dimensions ($3\frac{3}{8} \times 1\frac{1}{2}$ -inch diam) as manufacturer's standard tubes and, since it has the same base-pin arrangement, it may be interchangeable with these tubes.

The tube operates at 1100 volts, and it has a minimum plateau length of 150 volts.

Plateau slope is about 2% per 100 volts. Filled with helium and an organic quench, the tube recovers in about 200 microseconds, has a useful life of about 10^8 counts.

(TGC-8 is produced by Tracerlab Inc., Dept. CP, 130 High St., Boston 10, Mass. . . . or for more information check CP 1795 on handy form, pages 2 and 3.)

NOW...

STANDARDIZED AND STOCKED FOR PROMPT DELIVERY



Selection of
FLOWRATOR
Meters and other
F&P flow-rate
instruments
simplified

Standardization of F&P indicating instruments permits quantity manufacture, lower costs, and quicker deliveries.

You can now select flow meters from catalog data to meet your immediate requirements. Engineering charges and manufacturing delays are eliminated.



WRITE FOR NEW
"STOCK FLOW METER"
BULLETIN

Contains complete data, sizes, and prices with illustrations of F&P instruments now stocked. It lists all F&P sales engineering offices showing which offices carry stock meters.



FISCHER & PORTER CO.

DEPT. 2P-9E

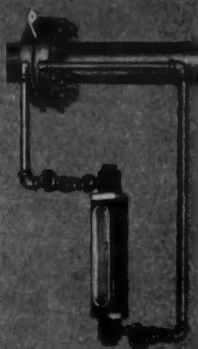
HATBORO, PENNSYLVANIA, U. S. A.

PROCESS CONTROL INSTRUMENTS

FLOWRATOR
accurate flow
measurement
meters



ORI-FLOWRATOR
high-capacity
by-pass meters



RATOSIGHT
Flow Indicators



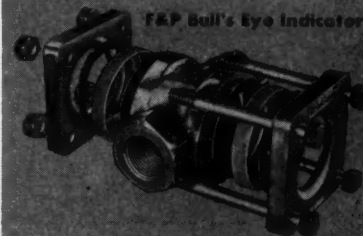
MAGNASIGHT
Flow Indicators



"C-CLAMP"
FLOWRATOR
Meters



F&P Bull's Eye Indicators



Laboratory
Flow Test
Kits



When inquiring check CP 1792 on handy form, pgs. 2-3

When inquiring check CP 1796 on handy form, pgs. 2-3

WHERE YOU CAN BUY

Rochester DIAL THERMOMETERS

For added pressure and corrosion resistance, ROCHESTER bi-metallic thermometers are stainless steel welded at case, stem and plug.

Available with handy recalibration feature. Order from your nearest ROCHESTER Representative listed below:

BALTIMORE 18, MD.
Energy Control Co.
2127 Maryland Ave.

BOSTON, MASS.
G. K. Kerisher
108 E. Dedham St.

CHARLOTTE 1, N. C.
Mac-Tric Control Co.
113 South Brevard St.

CHICAGO 20, ILL.
Rochester Mfg. Co.
9443 South Ashland Ave.

CLEVELAND 13, OHIO
Ralph M. Nelson
712 Marshall Bldg.

CORPUS CHRISTI, TEXAS
Brance-Kracy Co.
118 North Staples

DETROIT 2, MICH.
Metrol Co.
5538 Cass Ave.

HOUSTON, TEXAS
Brance-Kracy Co.
P. O. Box 1724

KALAMAZOO, MICH.
Metrol Co.
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KANSAS CITY 6, MO.
Snyder & Co.
903 McGee St.

LOS ANGELES 14, CALIF.
G. R. Schumann Co.
712 S. Olive St.

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Energy Control Co.
868 Broad St.

NEW HAVEN, CONN.
Energy Control Co.
31 State St.

NEW YORK 7, N. Y.
Energy Control Co.
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ODESSA, TEXAS
Industrial Instrument Corp.
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SAN ANTONIO, TEXAS
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Paul E. Rogers
P. O. Box 967
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ST. LOUIS 3, MO.
MacGregor-Sears Co.
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SYRACUSE 6, N. Y.
George O. Miller
441 Ridgewood Drive

TULSA 10, OKLA.
Snyder & Co.
1432 East 6th St.

WICHITA, KANSAS
Snyder & Co.
P. O. Box 2836
South Wichita Station

IN CANADA

TORONTO, ONT.
Baker Instruments Ltd.
185 Davenport Road

VANCOUVER, B. C.
Baker Instruments Ltd.
666 Alexander St.

ROCHESTER Dial Thermometers are a product of ROCHESTER MANUFACTURING COMPANY, INC., Rockwood Street, Rochester 10, New York

When inquiring check CP 1797 on handy form, pgs. 2-3

BROOKS-MITE PURGE METERS

... for metering low flow

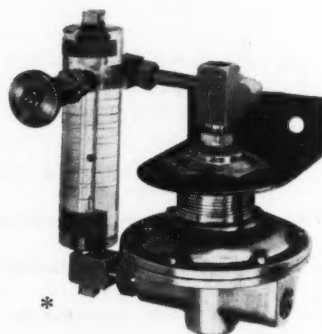
SPECIFICATIONS

One-piece acrylic plastic body with integral metering tube. Top and bottom cleanout connections. Built-in Flow-Mite needle valves with O-ring seals. Safe working pressure 100 lbs.—Safe working temperature 180°. Good chemical resistance; chlorine, photographic solutions, principal acids. Flow rates: 0.2 CFH to 3 CFM of air; .01 GPH to 3 GPM of water.

TYPES AVAILABLE

Single tube units with round or square bodies. Multi-tube units—2, 4, or 6 tube with or without manifold inlet. *Purge assembly with Conoflow Fixed Differential Relay for maintaining fixed pressure differentials.

Write for Bulletin No. 120-P



ROTAMETERS

for every service

with emphasis on SERVICE

**BROOKS
ROTAMETER
COMPANY**

Lansdale, Pennsylvania



When inquiring check CP 1798 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Utilizes bourdon tube
in potentiometer
pressure item . . .

transducer can be used for gage, differential, or absolute pressure

Uses: Pressure transducer is for gage, differential, or absolute pressure.

Features: Instruments are of bourdon tube actuated potentiometer type in which the brush of a precision potentiometer is actuated by a change in pressure to produce a change in resistance-ratio or voltage. Transducers can be made to operate under extreme temperatures, humidity, vibration and acceleration, and in atmospheres of dust and corrosive gases.

Description: Available in several types, instruments can be made with modifications to adapt to specific problems involving unusual liquid or gaseous media. Type PT uses air or a wide variety of gases or fluids and has a typical potentiometer resistance of 500 to 20,000 ohms. Potentiometer current capacity is from 5 to 25 ma, depending upon potentiometer resistance and resolution (0.2 to 0.5%).

Hysteresis is less than 0.5%. Pressure ranges: 0-15 to 0-4000 psi gage or differential; 0-15 to 0-20,000 psi absolute. Case pressures: standard 150 psi, but cases can be furnished to withstand up to 4000 psi.

(Produced by Rahm Instruments, Inc., Dept. CP, 12 West Broadway, New York 7, N. Y. . . or for more information check CP 1799 on handy form, pages 2 and 3.)

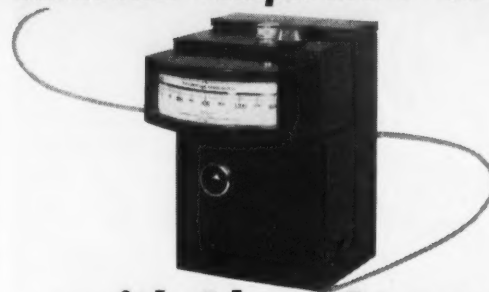
Catalog gives information on graphic devices

Eighty-eight-page catalog with photo illustrations describes graphic recording instruments made singly or in twins.

Overall dimensions and weights are tabulated and instruments cases are outlined. Specifications, features, and recommendations for 21 types of chart drives are given, although there are 30 types available. Fundamental methods for driving charts are explained. Other aspects of the instruments are also described such as the direct writing mechanism, measuring elements, and specifications for the seven styles of cases, and 23 different measuring elements.

Cat 250 is issued by Esterline-Angus Co., Inc., Dept. CP, Indianapolis, Ind. When inquiring specify CP 1800 on handy form, pages 2 and 3.

Electronic Temperature Control



...with Alnor Accuracy

Alnor, pioneer in the field of electronic temperature instruments, brings you automatic, precise temperature control for heat-treating furnaces, bake ovens—in fact, for any heating device whether electrically heated or fuel fired. It's the Alnor Temperature Controller—simple in design and operation, its accuracy proved on thousands of installations in many industries.

Easily and quickly installed, this instrument is ready to give you accurate controller service on new or existing heating equipment temperature—you merely set the pointer at the desired temperature and forget your indicating and controlling problems. But find out for yourself how Alnor accuracy and dependability can serve you in controller service; write today for complete details on the Alnor Temperature Controller . . . Alnor accuracy at a price you can afford. Illinois Testing Laboratories, Inc., Rm. 504, 420 N. La Salle Street, Chicago 10, Illinois.

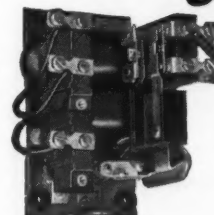
Alnor

PRECISION INSTRUMENTS
FOR EVERY INDUSTRY

When inquiring check CP 1801 on handy form, pgs. 2-3



all Electric **FLOATLESS
LIQUID LEVEL
CONTROLS**



The original — pioneered by B/W in 1933. No floats! No vacuum tubes! No moving parts in liquid. Literature describes relays and switches, automatic starter and relay combinations, multiple pump controls, special controls and panels and many application diagrams. Controls not affected by pressures, temperatures, acids or caustics. Remote control if desired. Ice free electrodes where necessary.

WRITE FOR CATALOG

B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring check CP 1802 on handy form, pgs. 2-3

CHEMICAL PROCESSING

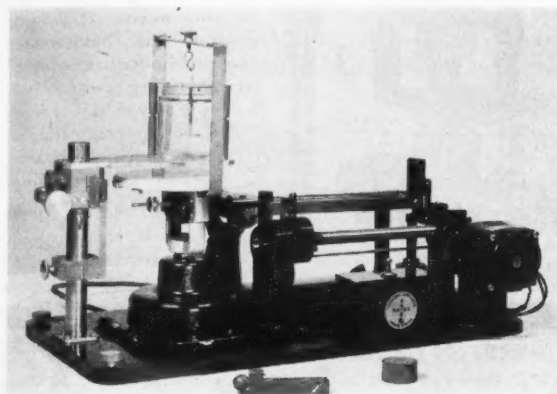
Tests elasticity or gel strength up to 600 grams — stops when test is over . . .

motor-driven weight brings instrument into balance, then stops and indicates test results

Uses: Determining physical properties of starch gels.

Features: Once placed in operation the instrument automatically finds desired reading and stops, preserving reading for operator to note.

Description: This Gelometer is built around a balance with motor-driven weights. Sample, in a jar, is placed as shown and motor is switched on. When weight has



Also tests yield points and elasticity

been driven to the balance point, motor stops and operator can read the scale. Provision is made for testing gels on two scales — 60 and 600 grams.

In addition to testing gel strength, device also finds elasticity and yield point. Elasticity reading is based on a three millimeter deflection in the gel, though weaker gels can be tested at two millimeters.

(Product of Hayes Scientific Appliances, Dept. CP, Urban, Ill. . . or for more information check CP 1803 on handy form, pages 2 and 3.)

Compensates for transfer lags in controlling heat . . .

indicating-controlling pyrometer holds on-off variations close to the set point

Uses: Controlled heating of ovens, furnaces, vats, plastic molding and extrusion machines, etc.

Features: Compensates for heat transfer lag and holds controlled unit close to set-point temperature.

Description: Model 293 Capacitrol is an electronic pyrometer. It controls and indicates. Typical range of the instrument is 0 to 2000°F. In addition to features of previous models, 293 has a "Line-otrol" device which reduces "on" and "off" variation of the controller to a minimum. Measuring system incorporates an Alnico V magnet.

Instrument is 7 $\frac{7}{8}$ x 8 $\frac{1}{8}$ x 7 25/32-inch deep. It may be flush or front panel mounted conveniently near the heating equipment. A wide variety of scales are available.

(Announced by Wheelco Instruments Company, Dept. CP, 847 W. Harrison St., Chicago 7, Ill. . . or for more information check CP 1804 on handy form, pages 2 and 3.)

Use it Anywhere...

in the laboratory...

oil field...orchard...mine...

mill...food plant...

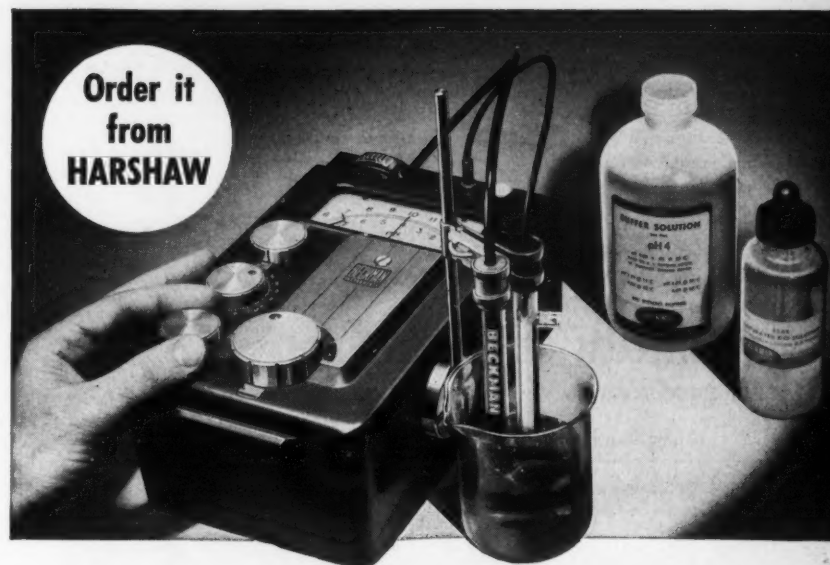
Anywhere!

Completely Portable pH Meter

THE BECKMAN MODEL N

Check over these features:

- Accuracy to better than 0.05 pH.
- Low operating cost—less than 2¢ per hour.
- Built-in temperature compensation—0° to 100° C.
- Fast warm-up of less than 10 seconds.
- "Check pointer" eliminates need for frequent buffer standardization.
- Batteries are easily checked with the regular panel controls. No need to disassemble the instrument. Clip-mounting of batteries eliminates need for soldering or wiring.
- All-metal case of cast aluminum with baked enamel finish to resist wear and corrosion.
- Splash-proof design, fully desiccated internally.
- Shock-proof. Each tube is individually shock-mounted.
- Weighs less than 8 lbs., complete.
- Equipped with the new Beckman Red Label Glass Electrode—virtually unbreakable, covers almost the entire pH range, usable from freezing to boiling.
- By far the most rugged overall construction of any pH meter.



Order it from HARSHAW

The new Beckman Model N pH Meter is entirely independent of any outside power circuit. It meets perfectly the wide demand for a completely portable battery operated pH instrument that is inexpensive, light in weight, compact, and rugged enough to be used anywhere. The newly developed Beckman Model N not only meets all these requirements, but many more. For instance, the electrode support rotates alongside the case for maximum convenience in carrying. Instrument can be used in either horizontal or vertical position. Convenient controls not only centralize all operating functions, but also permit checking amplifier circuits and battery condition without opening case or disturbing battery connections.

Two Models are Available:

1. Model N-1 (illustrated), without a cover but with a rigid handle—12 inches long, 4 $\frac{1}{2}$ inches deep, 7 $\frac{1}{2}$ inches wide including electrodes. Complete with glass and reference electrodes, electrode holder, 50 ml beaker, buffer solution, 100 ml KCL solution, 100 grams KCL crystals.
2. Model N-2 (not illustrated), with a cover-compartment hinged to the case with spaces for 2-ounce bottles of buffer solution and distilled water, thermometer, electrodes and beaker—12 inches long, 8 inches deep, 7 $\frac{1}{2}$ inches wide including electrodes. Complete with the same accessories as listed above for Model N-1 and in addition, thermometer 0-100°C, polyethylene bottles for buffer solution and distilled water.

H-29601—Beckman Model N-1 pH Meter.

Each \$180.00

H-29602—Beckman Model N-2 pH Meter.

Each \$195.00

(Quantity prices on request)

For further information on these instruments or any other Beckman product, contact the Harshaw Scientific office nearest you.

HARSHAW SCIENTIFIC
DIVISION OF THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO

Cleveland 6, Ohio
1945 East 97th St.
Cincinnati 2, Ohio
224-226 Main St.
Detroit 28, Mich.
2940 Hubbell Ave.



Houston 11, Texas
6622 Supply Row
Los Angeles 17, Calif.
3237 S. Garfield Ave.
Philadelphia 48, Pa.
Jackson & Swanson Sts.

When inquiring check CP 1805 on handy form, pgs. 2-3



Take it easy, brother. Don't yell. There's no need to shout or even do anything to stop the flow in fuel and process lines when they are protected by

ASCO Safety Shut-off Valves

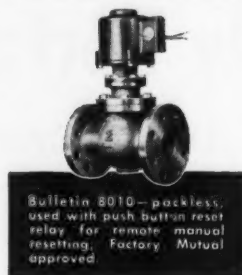
(Factory Mutuals Approved)

Perhaps you have an oil or gas burner operating in a rather hazardous location and want an automatic cut off ... or your process lines are carrying fluids (liquid or gas) which if allowed to flow after trouble has developed could cause an explosion ... or you are operating vital and expensive equipment which should not continue running if, for example, the lubricating system failed ... these are the spots for "Factory Mutuals Approved" ASCO SAFETY SHUT-OFF VALVES. They stop the flow instantly and automatically.

Don't leave the shutting down of lines to the alertness of operators. On every line, use the automatic—sure—electrically operated valves. We have a complete line of such solenoid valves from which to select. Write us in detail concerning your requirements.



We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays



Bulletin 8010—packless, used with push button reset relay for remote manual resetting. Factory Mutual approved.



Bulletin 8020—free handle manual reset, safety shut-off valve; for air and non-corrosive gas; Factory Mutual approved.

Automatic Switch Co.

379 LAKESIDE AVENUE • ORANGE, N. J.

When inquiring check CP 1806 on handy form, pgs. 2-3

V-52-2

A COMPLETE LINE OF GAS ANALYSIS SYSTEMS

THERMOCOUPLE TYPE PRECISION COMBUSTIBLE GAS ALARM SYSTEM

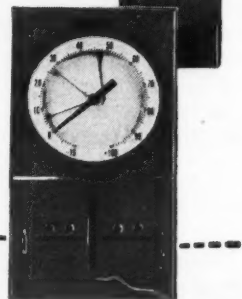
Tube Sampling—Indicating or Recording

Protects 4 to 8 danger spots with one installation! Specified where explosive concentrations do not reach critical levels rapidly. Details in our Bulletin 11-86TS.

RECORDING THERMOCOUPLE TYPE PRECISION COMBUSTIBLE GAS ALARM SYSTEM

A packaged unit for the protection of processes, plants, personnel. A new, more accurate principle of gas analysis. Improved zero stability. "Fail-Safe" construction. Write for bulletin No. 11-86.

Also—Gas Analysis Instruments Utilizing The Principles of Thermal and Electro Conductivity



Our engineers will be glad to serve you.



DAVIS EMERGENCY EQUIPMENT CO., INC.

56 HALLECK ST.,

NEWARK, 4. N. J.

When inquiring check CP 1807 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

AC Instrument checks 600v or 600 amp and has lower scales, too ...

combines snap-around ammeter and conventional voltmeter

Uses: Test meter for alternating current. Provides for tests up to 600 amp or 600 volts.

Features: Snap-around ammeter feature allows current checks without breaking the line. Manufacturer reports very little error due to off-centering of conductor in the clamp.

Description: Amprobe Model 600 incorporates these six ammeter scales: 15, 30, 60, 150, 300, and 600 amp. In addition, it can be used with probes to check voltages. Voltage ranges of the instrument are 150, 300, and 600 volts AC. Fingertip control selects ranges; readings are made on a "rimless" meter face which offers high visibility from almost any angle.

(Product of Pyramid Instrument Corporation, Dept. CP, Lynbrook, N. Y. ... or for more information check CP 1808 on handy form, pages 2 and 3.)

Gives steady DC flow from AC line ...

electronic device takes over with 115v, 60 cps

Uses: Provides a steady DC source from an AC line, using 115v 60 cps. Designed primarily for use with potentiometer indicators, recorders, and controllers, where automatic standardization is not feasible or where use of batteries is not desirable. Power supply is also used with resistance thermometers, strain gages, or other devices requiring a constant direct current.

Features: Operating from a 115v, 60 cps line, the device is designed for a 10 ma output at 1.4v DC and provides current with a high degree of stability to well within the limitations of $\pm 1/10$ of 1%. Units for other currents and voltages can be supplied.

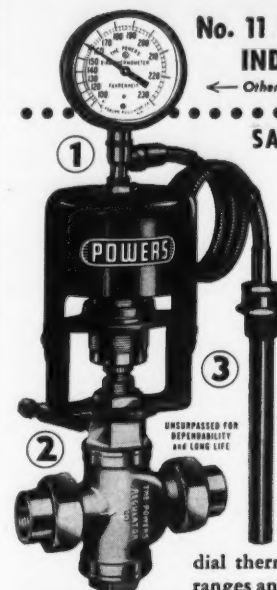
Description: Model 50220 Constant Current Supply consists of a regulated input transformer, a 6x4 rectifier, a 5651 voltage reference, and a 6SN7 control tube. Special feedback circuit allows a flat current characteristic over a wide input voltage range (80-140v).

(Product of Weston Electrical Instrument Corp., Dept. CP, 617 Frelinghuysen Ave., Newark 5, New Jersey ... or for more information check CP 1809 on handy form, pages 2 and 3.)

POWERS

No. 11 Self-Acting TEMPERATURE INDICATING REGULATOR

Other dials available



SAVES LABOR—Stops Losses caused by over-heating

Automatically controls temperature of liquids or air at any point desired. Needs no compressed air or electricity for its operation.

3 Plus Values give you more for your money: 1) Easy to read 4" dial thermometer shows temperature of liquid or air being controlled, makes it easy to adjust regulator for proper temperature. 2) Has valve stem lubricator. 3) OVER-heat protection.

Powers No. 11 Regulators are available also without dial thermometer in a variety of 60° F. ranges and valve bodies 1/4" thru 8". (110)

ECONOMICAL • DEPENDABLE • SIMPLE • EASY TO INSTALL

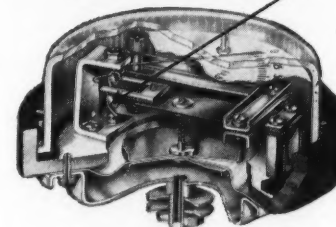
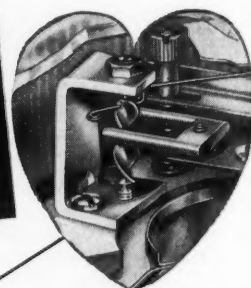
WRITE FOR BULLETIN 329 • THE POWERS REGULATOR CO.
2737 Greenview Ave., Chicago 14, Ill. • Offices in over 50 Cities

When inquiring check CP 1810 on handy form, pgs. 2-3

Only

DWYER
MAGNEHELIC GAGE
has the
ultra-sensitive
"MAGNETIC LINK"

Not subject to surge or vibration damage



EXCEPTIONALLY VALUABLE FOR MEASURING

- Filter Resistance
- Air Velocity
- Furnace Drafts
- Static Pressures
- Gas Pressures
- Checking —

Flow meters, control equipment, automatic valves, gas-air ratio controls, etc.

The exclusive "Magnetic Link" is a Dwyer Development offering extreme sensitivity, low cost and a ruggedness that makes the Magnehelic Gage ideal for portable, as well as stationary, use. Long life and trouble-free operation is assured. Ranges from 0-1" of water to 0-2 psi.

Request
Bulletin
No. 250

F. W. Dwyer Mfg. Co.

335 SOUTH WESTERN AVENUE • CHICAGO 12, ILLINOIS

When inquiring check CP 1811 on handy form, pgs. 2-3

CHEMICAL PROCESSING

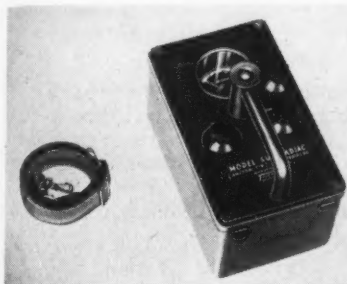
Foolproof reading assured with 4" meter, dial light and scale shield . . .

radiation meter has five scales to cover 5 mr/hr to 50 roentgens/hr with $\pm 15\%$ accuracy

Uses: Meets US Signal Corps specifications for a Civil Defense instrument and has been found particularly useful in monitoring areas where industrial radiography or Cobalt-60-work is being carried out.

Features: Combination of devices makes it virtually impossible to mis-read the instrument.

Description: Full scale values of the five ranges of the SU-10 Radiac are: 5, 50, and 500 milliroentgens per hour, and 5 and 50 roentgens per hour. Scales are arranged in order of increasing sensitivity and each scale has a different color. Scale switch, as well as controlling the scale being used, masks off the other four scales so that there can be no mistake about the range of values encountered.



Withstands shock and submersion

Four-inch rectangular meter can be illuminated by pushing a button

in the carrying handle of the instrument. Its readings are accurate to plus or minus 15 percent at any value. Meter is furnished with a known source so that periodic checks can be made.

Designed to operate under severe humidity and temperature conditions, the Radiac is also shock-proof and submersible. It can be easily carried and is furnished with a carrying strap.

(Product of Tracerlab, Inc., Dept. CP, 130 High Street, Boston 10, Mass. . . or for more information check CP 1812 on handy form, pages 2 and 3.)

Easily carried in one hand, thermometer takes temps to 1500°F . . .

set of tips cover cases of surface contact, molten metals or other hot liquids, and gas

Uses: Manufacturer recommends this instrument for surface, gas, liquid, and molten metal temperatures in the range from 0 to 1500°F.

Features: Two scales are provided in the instrument — 0 to 500, 0 to 1500°F — with accuracy of about 2.5% of scale used. Plastic case and handle make it easy to carry.

Description: Type FH-1 Hand Pyrometer is designed for use with a set of chromel-constantan thermocouple tips. Surface tips are available as rigid 14-inch stainless units with ceramic insulator, or as a 34-inch flexible attachment. Two-prong contact tip uses 8-gage chromel and constantan wires sharpened to points. Immersion type contains the same thermocouple protected in a 6 x 1/8-inch diameter stainless tube.

Since it is a thermocouple-millivoltmeter instrument, the pyrometer does not require batteries or an external

(Continued on next page)



THIS MILTON ROY AUTOMATIC pH CONTROL SYSTEM DOES THE JOB . . .

A large Eastern rayon manufacturer maintains precise pH control, guards against rayon discoloration by iron pick-up in process water by using a Milton Roy Automatic pH Control System. Sodium silicate is the control chemical. A predetermined pH control point insures a sufficient silicate feed to coat the inside of the pipes, preventing iron oxidation and subsequent iron pick-up. Field reports show this system pin-points pH value within safe limits of plus or minus 0.2 units, eliminates rayon discoloration, effects manufacturing dollar savings.

An important component of the Automatic pH Control System—

which may be supplied with all accessory control equipment—is a Milton Roy Motor-Driven Simplex Controlled Volume Pump with motorized micro adjustment of pump plunger stroke length. Stroke length is controlled automatically from a pH controller to deliver sodium silicate continuously as required.

Protection against iron pick-up by the introduction of surface active and various corrosion inhibitors while maintaining precise pH control is just one application of the principle of Milton Roy Controlled Volume Pumping. Complete systems, utilizing the metering accuracy of Milton Roy Pumps—either

motor-driven or air-powered—are employed in plants for pH control of flocculation in water purification; to maintain specific materials soluble or insoluble; to prevent unfavorable side reactions in organic synthesis; to promote greater adsorption of color bodies on resins or activated carbons, or for many applications in chemical processing. Accurate volume control may be maintained using two variables, such as rate of flow and pH value.

For detailed information, call the Milton Roy representative listed in your classified telephone directory. Or write us direct.

Manufacturing Engineers



MILTON Roy COMPANY

1354 EAST MERMAID LANE, PHILADELPHIA 18, PA.

CONTROLLED VOLUME PUMPS AND AUTOMATIC CHEMICAL FEED SYSTEMS

When inquiring check CP 1813 on handy form, pgs. 2-3

BECKMAN—the leading name in pH—presents
another important advancement in instrumentation

Announcing
**The BECKMAN
MODEL N
pH METER**

**Completely Portable!
Extremely Compact!
...and Really Rugged!**



In the constantly expanding field of pH, there is wide demand for a completely portable battery-operated pH instrument that is low in price, light in weight, compact in size, and amply rugged to be used anywhere—in the orchard, in the oilfields, in textile mills, plating shops, mining and mill operations, food processing plants, laboratories... anywhere, without dependence upon outside power circuits.

The newly developed Beckman Model N pH Meter not only meets all these requirements, but also many more. Here are the highlights. Check into a single pH instrument!

OPERATING SIMPLICITY AND ACCURACY...

- ▶ Accuracy to better than 0.05 pH.
- ▶ Low operating cost—less than 2c per hour.
- ▶ Built-in temperature compensation—0° to 100° C.
- ▶ Fast warm-up—less than 10 seconds.
- ▶ "Check Pointer" eliminates need for frequent buffer standardization.
- ▶ Batteries are easily checked with the regular panel controls—no need to disassemble the instrument. Clip-mounting of batteries eliminates need for soldering or wiring.

GET ALL THE FACTS on this newest Beckman advancement in pH by contacting your nearest authorized Beckman instrument dealer. Or write direct!

NEW COMPACTNESS AND RUGGEDNESS...

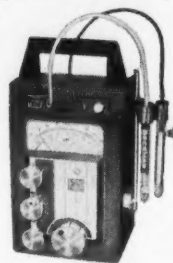
- ▶ All-metal case—cast aluminum with baked enamel finish to resist wear and corrosion.
- ▶ Splash-proof design—fully desiccated internally.
- ▶ Shock-proof—each tube is individually shock-mounted.
- ▶ Light weight—less than 8 lbs., complete.
- ▶ Small, compact—only 4" x 6" x 9½" overall.
- ▶ Equipped with the new Beckman Red Label Glass Electrode—virtually unbreakable, covers almost the entire pH range, usable from freezing to boiling.
- ▶ By far the most rugged overall construction of any pH meter.

SOUTH PASADENA 14 CALIFORNIA
Factory Service Branches: Chicago — New York — Los Angeles.
Beckman Instruments include: pH Meters and Electrodes — Spectrophotometers — Automatic Titrators — Radioactivity Meters — and Special Instruments

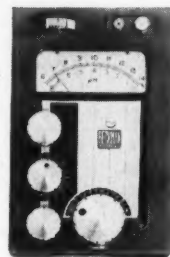
When inquiring check CP 1814 on handy form, pgs. 2-3

**NEW CONVENIENCE
SIMPLICITY
RUGGEDNESS**

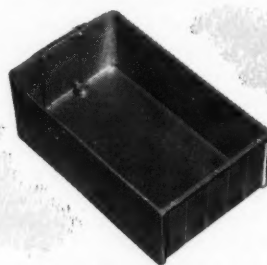
make the Beckman Model N a noteworthy advancement. The following features are typical...



ELECTRODE SUPPORT ROTATES alongside case for maximum convenience in carrying. Instrument can be used in either horizontal position (shown at left) or vertical position (above)—whichever is handier.



CONVENIENT CONTROLS not only centralize all operating functions, but also permit checking amplifier circuits and battery condition without opening case or disturbing battery connections.



RUGGED, COMPACT DESIGN withstands rough field and plant service with negligible maintenance. Solid cast-aluminum case is strong, yet light in weight. Beckman Glass Electrode is virtually unbreakable!

There are many other important features designed into the Model N. Be sure to get the complete story on this new Beckman development!

PROCESS INSTRUMENTATION

power supply. Scales are both 3½-inches long. One or the other is selected by moving a thumb switch to an appropriate position. In either case, meter is compensated to a cold junction temperature of 80°F. Meter is dust-tight and moisture resistant.

(Developed by General Electric Co., Dept. CP, Schenectady 5, N. Y. . . . or for more information check CP 1815 on handy form, pages 2 and 3.)

**Records draft pressures
with an accuracy of
1/4 inch water...**

only 5¼" square, recorders are available in number of ranges down to 0-10 inches of water

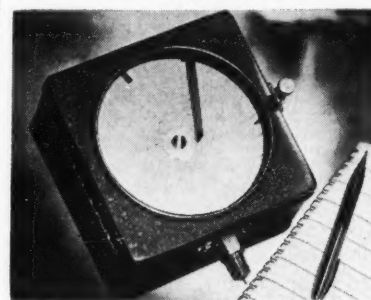
Uses: Recording pressures as low as those in the 0 to 10 inches of water range, and in other ranges up to 60 psig. Manufacturer has similar small instruments for recording still higher pressures.

Low-pressure type is recommended for fan ventilating systems, manufactured gas distributing systems, combustion systems, partial or complete vacuum systems, air speed recorder (with pitot tube), liquid level recording, as high pressure draft gage, and as a replacement or supplement to U-tubes or inclined gages.

Features: Overall dimensions of the units are 5¼ x 5¼ x 2¼ inches. Accuracy, however, is comparable to larger instruments.

Description: Minicorders have been designed so that they can replace dial gages in many instances. Small size is combined with sensitivity and accuracy. In the 0 to 10 inches of water instrument, smallest division of the scale is ¼ inch of water. Accuracy exceeds this—manufacturer can guarantee 2% of full scale.

Type 3-B recorder weighs only 2 pounds. Measuring elements consist of a series of brass bellows suitable for



Tiny recorder can be furnished in any one of several calibrations

liquids and gases which do not corrode brass. Stainless bellows are available in some ranges. Bellows are reported to produce enough power to eliminate the lag or dragging of the pen.

Recorders may be calibrated in inches of water, ounces per square inch,

inches of mercury, feet of water, pounds per square inch, feet of head of any liquid which does not corrode brass or stainless steel. Vacuum units are available, too, as are compound vacuum-pressure recorders calibrated in any units. All these minicorders have a calibration adjustment which permits range adjustment at any point on the chart.

Measuring elements are enclosed in a metal case which is gasketed for protection against dust, moisture, and weather. Bottom connection is a ¼-inch male fitting (similar to conventional pressure gages).

(Minicorders are a development of The Dickson Company, Dept. CP, 7420 Woodlawn Ave., Chicago 19, Ill. . . . or for more information check CP 1816 on handy form, pages 2 and 3.)

SELF

**-CONTAINED
-CONTROLLED
-SUFFICIENT
-RELIANT**

The patented Farris Stacon Temperature Regulator is easily the most independent regulator available today. It's unique. It stands alone. It's trustworthy. It needs no watching. It's perfect for the man who wants no cause for worry . . . who wants to relax in the sure knowledge that his temperatures are constant.

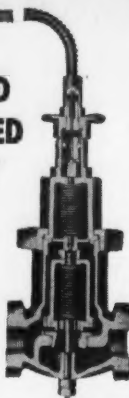
Here's why Stacon stands alone in the field. It has no packing glands to leak or bind . . . the stem moves freely. The liquid in the bulb flashes to vapor in the power bellows, assuring hairtrigger response to move the disc. It operates with unbelievable accuracy—to within plus or minus 1 degree—and it operates with that accuracy under *all* conditions. Stacon provides air-operated accuracy at low, self-operated cost.

Get the details on the one truly outstanding temperature regulator—Stacon. Send for Bulletin 50-1000 to get all the details.

**Patented and Patents Pending*

Farris Stacon Corporation

506 COMMERCIAL AVE. PALISADES PARK, N. J.



Stacon Temperature Regulator*

When inquiring check CP 1817 on handy form, pgs. 2-3

• FOR GAUGING LIQUIDS OF ALL KINDS
• 100% AUTOMATIC
• APPROVED BY UNDERWRITERS' LABORATORIES

"LIQUIDS WORTH STORING ARE WORTH MEASURING" WITH A LIQUIDOMETER Tank Gauge

WRITE FOR COMPLETE DETAILS

THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, I.N.Y.

When inquiring check CP 1818 on handy form, pgs. 2-3

APRIL, 1952

PROCESS INSTRUMENTATION

Flows of 75 gal per hr metered with tiny rotameter . . .

solid acrylic block design includes control valve and fittings

Uses: Metering small flows of liquid or gas.

Features: Tiny rotameter units include their own control valve, are equipped with fittings.

Description: Dwyer Flowmeters are available for liquids or gases. Liquid units (single or multiple) are built in capacities from 15 to 75 gallons per hour (0.2 to 0.15 cubic feet per hour). Gas units meter a maximum of 3 cubic feet per minute at 75 psi. They are not recommended for temperatures higher than 150°F.

Made of solid acrylic block, the meters are precision drilled, reamed, and polished. Standard unit includes flow control valve and a choice of any type fitting in brass or stainless.

Ordinarily, no scale is marked on the meter, but when production quantities are ordered, special scales may be designated.

Standard units are flush mounted — the mounting holes are positioned as specified.

(Manufactured by F. W. Dwyer Mfg. Co., Dept. CP, 317 S. Western Ave., Chicago 12, Ill. . . or for more information check CP 1819 on handy form, pages 2 and 3.)

Calibrated isotopes serve as standards for meters . . .

five isotopes cover beta energies from 0.155 to 2.3 mev

Uses: As reference standards for checking counters and other radioactivity instruments.

Features: Each of the five isotopes is calibrated to provide known quantities of beta radiation from 0.155 to 2.3 million electron volts.

Description: Isotopes furnished are carbon-14, cobalt-60, thallium-204, bismuth-210, and protoactinium-234. These samples are backed with copper discs and contained in a fitted wooden box. Accompanying manual shows method of calibration.

Spare copper discs are also provided for millicurie determinations of numerous beta emitting isotopes.

(Available from Atomic Instrument Co., Dept. CP, 84 Massachusetts Ave., Cambridge 39, Mass. . . or for more information check CP 1820 on handy form, pages 2 and 3.)

NEW STEAM METER



**BUILDERS
1952 MODEL
SHUNTFLO
METER**

— For STEAM, AIR or GAS

Gives you answers to steam consumption in POUNDS, not GUESSES.

FEATURES

New streamline cooling and damping chamber

Improved durability and ruggedness for longer service

No stuffing box to leak or cause friction

High accuracy over wide

range, within $\pm 2\%$ of actual flow

"Open upper limit", temporary overload capacity of 150%

Self-contained and self-operated

As easy to install as a valve or fitting

Builders Shuntflo Steam Meters are available in two styles: Model SMKS for 2" to 14" lines — Model SMDH for 1" and 1½" lines. Send for descriptive Bulletins 400-F1 and 400-F2. Builders-Providence, Inc. (Division of Builders Iron Foundry), 387 Harris Ave., Providence 1, Rhode Island.



BUILDERS PROVIDENCE
Instruments



Instruments for recording, indicating, and controlling flow, liquid level, pressure, and weight. Chlorinizers — chlorine gas feeders.

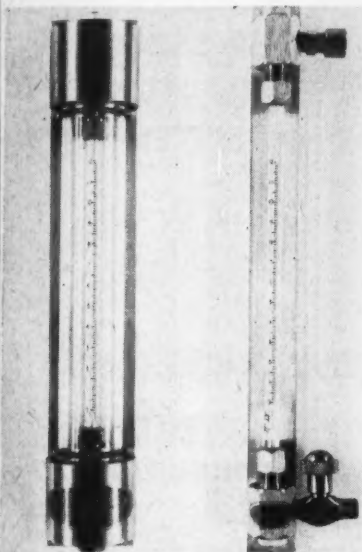
When inquiring check CP 1821 on handy form, pgs. 2-3

**Meters "trickle" flows
of liquid or gas
at 1000 psi . . .**

lowest range is 0 to 6 ml per min;
other ranges to 105 ml per min

Uses: Especially useful in pilot-plant and lab work where small flows are to be metered at high pressure. Both liquids and gases can be accommodated.

Features: Two series of meters—for 1000 and 100 psig — are available in these ranges: from a maximum flow of 6 milliliters per min-



1000 psi meter (left), and 100 psi meter (right) both use replaceable glass tubes

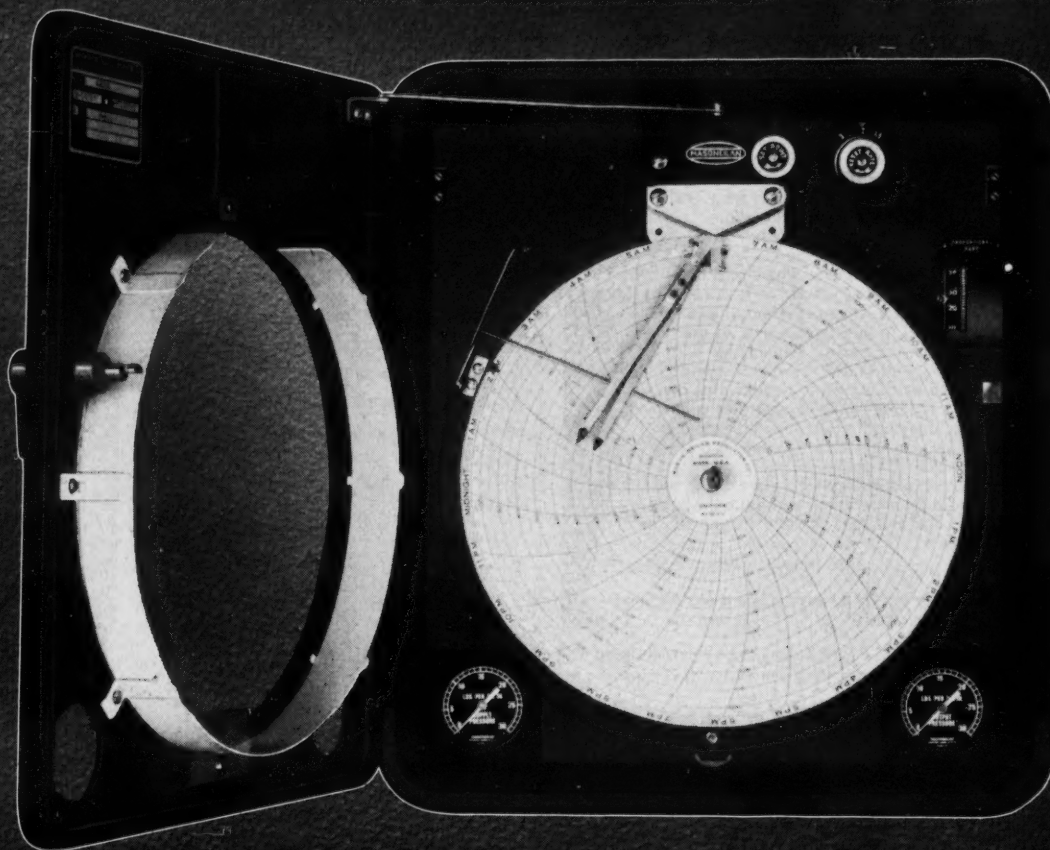
ute (0.1 gallons per hour) to 105 milliliter per minute (1.5 gallons per hour) for water at 20°C, and for gas flows from 90 milliliters per minute (0.0032 cfm) to 610 milliliters per minute (0.021 cfm) based on air at 20°C.

Description: Both series are conventional rotameters in that they use the float and tapered tube method of indication. Tubes have a fused on, solvent-proof millimeter scale. Made of glass, these tubes are available in four sizes. Tube replacement usually takes about two minutes.

Four types of floats are available. Gold, stainless, and aluminum floats are intended for liquid service. (Nickel and platinum floats can also be supplied.) Gas meters employ either aluminum or plastic floats. Rotameters can be equipped with an ionizing anti-static device to prevent erratic behavior of the plastic float in the gas stream.

Other materials of construction in-

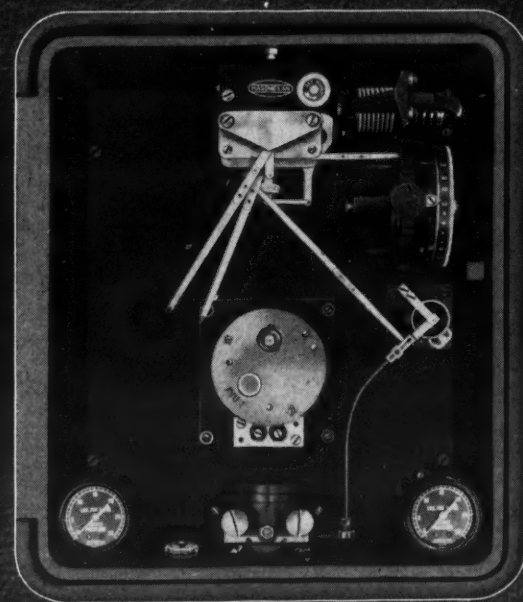
THIS MASONEILAN "6-IN-1"



MASONEILAN

60000 SERIES

PNEUMATIC CONTROLLER



CONTROLLER GIVES YOU

Stubborn Dependability

... Because of its COMPLETE SIMPLICITY

Masoneilan engineers "designed out" the complications which have previously been headaches to you — and "designed in" a simplicity which you will welcome. You can rely on these instruments to give you unfailing performance — and unexcelled performance — day after day . . . because trouble spots just don't exist.

Consider the advantages the simplicity of this really modern design offers you . . .

1. ONE MECHANISM — the GIMBAL UNIT — provides four combinations of primary and feedback motion to give you a choice of SIX TYPES OF CONTROL: Direct Proportional; Reverse Proportional; Direct Differential-Gap; Reverse Differential-Gap; Direct On-Off and Reverse On-Off.

2. ONE SETTING selects type of control, type of action and proportional band or differential-gap setting.

3. COMBINATION BACKPLATE-MANIFOLD supports all operational units (plus chart drive and gauges); sup-

ports and conceals pneumatic tubing with plug-in connections, which eliminate pressure fittings.

4. Complete, INDEPENDENT operational unit SUBASSEMBLIES — relay pilot, primary element, pen movement gimbal unit, and proportional (or proportional-reset) unit — are easily ACCESSIBLE, easily INTERCHANGEABLE. Only TWO LINKS are used for connections.

5. SETTINGS (made by knurled knobs and large proportional band wheel) and pilot METERING TUBE are ACCESSIBLE WITHOUT REMOVING CHART.

All types of control plus pneumatic set, time cycle and differential supplementary functions are now available in recording or indicating controllers for pressure, temperature, liquid level or flow service. Also recorders and manual control sub-panel.

MASON-NEILAN REGULATOR CO.

1203 ADAMS STREET, BOSTON 24, MASS., U.S.A.

Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis • Tulsa
Philadelphia • Houston • Pittsburgh • Atlanta • Cleveland • Cincinnati • Detroit • San Francisco
Salt Lake City • El Paso • Boise
Denver • Appleton
Corpus Christi • New Orleans
Albuquerque • Charlotte • Los Angeles
Mason-Neilan Regulator Co., Ltd.,
Montreal and Toronto



PROCESS INSTRUMENTATION

clude Neoprene gaskets for the low pressure models, Teflon for high pressure series (though Neoprene can be used here too). Metal parts can be had in brass or stainless (type 303 and 316). Fittings are threaded for 1/8-inch pipe.

(Announced by Technical Equipment Co., Dept. CP, 4348 San Pablo Ave., Emeryville 8, Calif. . . or for more information check CP 1822 on handy form, pages 2 and 3.)

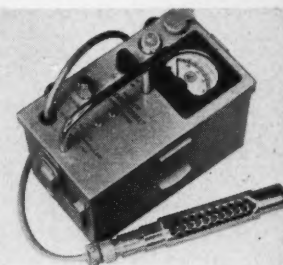
**Light-weight counter
is weatherproof,
true to 10% . . .**

has three meter scales as well as neon light and earphones

Uses: General-purpose radiation counter for civil defense.

Features: Combines three means of indication: flashing neon light, earphones, and a meter reading 0.2, 2.0, and 20 milliroentgens per hour. Accuracy is within 10% on all ranges.

Description: Model 107 "Professional" Geiger counter weighs only about 5 pounds and measures



Waterproof unit weighs 5 pounds

4 x 4 1/2 x 6 1/2 inches. Top panel control allows for calibration with the standard sample furnished along with the instrument.

Two Geiger tubes are available. One type has a sliding shield which allows for discrimination between betas and gammas. Second, high sensitivity type, has a mica end window, reacts to 2 mev alpha particles and 0.015 mev beta particles.

Designed for outdoor use as well as lab service, the unit is completely waterproof. Batteries last months.

"Professional" counter is a product of Precision Radiation Instruments, Dept. CP, 4113 W. Jefferson Blvd., Los Angeles 16, Calif. . . or for more information check CP 1823 on handy form, pages 2 and 3.)

For more information on product at left, specify CP 1824 . . . see information request blank between pages 2-3.



Lasts longer in corrosive service

Like all ALOYCO valves, this acid-shield gate valve is especially engineered for severe corrosive service. Its dependable performance results from extensive metallurgical research and production of high alloy valves exclusively.

ALOYCO No. 111-A acid-shield gate valve is made in a wide range of analyses to specification and regularly stocked in popular alloys.



SUCCESS STORIES FROM ALOYCO'S CORROSION CLINIC

THE CORROSIVE: Water contaminated with 20% acetic acid.

THE APPLICATION: Step in manufacture of aspirin powder for The Bayer Company, division of Sterling Drug, Inc.

THE VALVE: ALOYCO No. 111-A Gate valves.

THE RESULTS: Corrosion and subsequent leakage required replacement of cast iron valves. Sixteen ALOYCO gate valves have been in service two and a half years completely free of maintenance.

THE BACKGROUND: Contamination prevention is only one reason why ALOYCO valves are selected for such a wide variety of applications in the chemical industry.

The *Aloyco Corrosion Clinic* works exclusively in corrosion-resistant alloys. Your problem—whether it is contamination, discoloration, temperature extremes, corrosion, or cost—can be solved by the Clinic.

If you must guard against corrosion, call on the *Aloyco Corrosion Clinic*, for the right alloy, the right valve.



The Bayer Company is so completely satisfied with the performance of ALOYCO valves in this installation they are buying more for all parts of the plant.

ALLOY STEEL PRODUCTS CO., INC.
1302 West Elizabeth Avenue, Linden, N. J.

Longer Lasting
ALOYCO VALVES
1st in Corrosive Service

PROCESS INSTRUMENTATION

Telemeters load changes over a long distance in two seconds . . .

speed of telemeter itself is close to 0.3 second

Uses: For transmitting any signal which can be converted into a proportional DC millivolt quantity. Flexibility of the system also allows totalizing at the source, in the telemeter system, or at the final measuring element.

Features: System transmits over power lines, pilot wires, or microwave. Speed of the telemeter system (exclusive of end device) is about 0.3 second. Practical measuring instruments are capable of operating with only a two-second lag.

Description: Freq-O-Tron Telemetering Equipment employs a thermal converter operating in the millivolt range. System, composed of an IT-1 transmitter and an IR-1 receiver, modulates frequency of the signal in the 15 to 35 cycles per second "band." Operation is entirely electronic. Most usual method for transmission is by power line.

Totalization of inputs is accomplished by simply connecting them in series. Other methods are available for totalizing at the receiving end.

(Product of Westinghouse Electric Corporation, Dept. CP, Box 2099, Pittsburgh 30, Pa. . . . or for more information check CP 1825 on handy form, pages 2 and 3.)

Illustrates rheostats and resistors

In its seventeen pages, catalog shows a complete line of tubular rheostats, potentiometers, and resistors from 220 to 1000 watts. Also described are double rheostats and resistors up to 2000 watts. A featured item is a vernier type rheostat — specially developed for applications where extra-fine and accurate control of current or voltage are desirable.

Among other products in this amply illustrated publication are: miniature slide wire rheostat-potentiometer, gradual and graded taper wound rheostats, and rotary drive rheostats for switchboard mounting. Cat 5 is issued on letterhead request to Rex Rheostat Co., Dept. CP, 3 Foxhurst Rd, P.O. Box 232, Baldwin, L.I., N.Y.

For more information on product at left, specify CP 1826 . . . see information request blank between pages 2-3.

PROCESS INSTRUMENTATION

Times and selects conditions for eleven operations, but it allows changes . . .

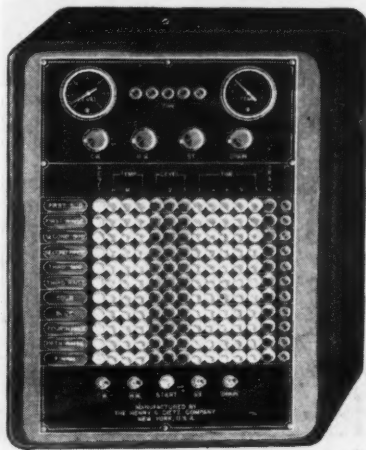
electrical timer uses no limited-life parts; operates from AC or DC, providing electrical signals

Uses: Timing and controlling conditions of processes which can be handled electrically. This particular model was developed for automatic washing machines — but it is versatile enough to be fitted into a great number of operations.

Features: While the timer selects time, temperature, and water level for each of eleven steps, any one of them may be changed without affecting any other part of the complete cycle.

Description:

Timed Operations Preselector (Cat 125) consists of a single synchronous-motor timer which delivers a repetitious fixed time impulse. Any multiple of this impulse period may be selected for any step by simply pushing the appropriate button. Illustration shows timer and selection buttons. Each horizontal



Any step may be changed without affecting others

row represents one step of the cycle. Vertical rows represent equal temperatures, water levels, or periods. There is no limit to the number of steps, length of cycle, or conditions that may be controlled. Manufacturer stocks components which allow custom units to be quickly assembled for all sorts of jobs.

Design does not include any cams, clutches, or other mechanical parts subject to wear. It is reported to work from any value of AC or DC, controlling electrical power to components of the system which is being controlled.

No vacuum tubes, stepping relays, or limited-life components are used. Dust-proof and steam-tight units are available.

(Available from The Henry G. Dietz Company, Dept. CP, 12-16 Astoria Blvd., Long Island City 2, N. Y. . . . or for more information check CP 1827 on handy form, pages 2 and 3.)

Comparators and Indicators for pH control and water tests

Catalog 600-10 illustrates and describes manufacturer's glass color standard comparators. Illuminator to permit determinations in artificial and daylight is introduced in the 12-page review. Catalog 600-20 features indicator solutions for pH measurements, water and chemical analyses with comparators.

Cat 600-10 and Cat 600-20 are issued by Hellige Inc., Dept. CP, 3718 Northern Blvd., Long Island City 1, N. Y. When inquiring specify CP 1828 on handy form, pages 2 and 3.

APRIL, 1952

Here's why

it pays to know your

HSM
HONEYWELL SUPPLIES MAN

Brown charts are made of paper specifically designed for clear, dependable inking . . . precisely calibrated for accurate recording. Planned buying . . . the HSM way . . . eliminates possibilities of damage or shrinkage often caused by excessive storage time.

E. W. MORGANSTERN, Honeywell Supplies Man in the Chicago area, helps check stocks of Brown recorder charts at Sinclair Research Laboratories . . . where the HSM Plan assures wise buying and balanced inventories of all pyrometer supplies.

You'll be pleasantly surprised when you, too, learn how this plan can add new convenience and econ-

omy to your pyrometer supplies purchasing!

There's a Honeywell Supplies Man near you . . . at your local Honeywell office . . . as near to you as your phone. Call him in today . . . let him show you how the HSM plan can work in your plant.

MINNEAPOLIS-HONEYWELL REGULATOR Co., Industrial Division, 4421 Wayne Ave., Philadelphia 44, Pa. Stocking points in Philadelphia, Cleveland, Chicago, Atlanta, Houston, Los Angeles and San Francisco.



MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS

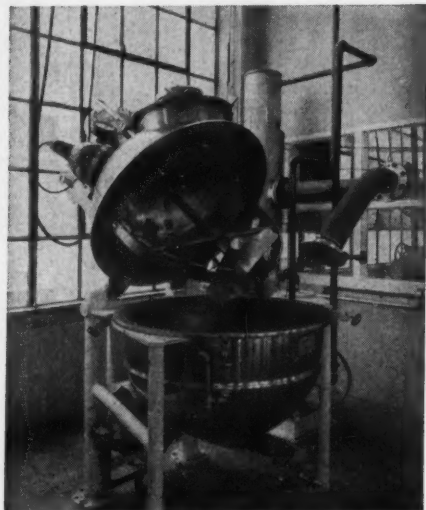
First in Controls

● Important Data

Write for new Pyrometer Supplies Buyers' Guide No. 100-4

When inquiring check CP 1829 on handy form, pgs. 2-3

GREATER UNIT CAPACITY with BUFLOVAK-DOPP PROCESSING KETTLES



A hinged cover, supporting the drive and agitator, gives complete accessibility to this BUFLOVAK Stainless Steel Processing Kettle.

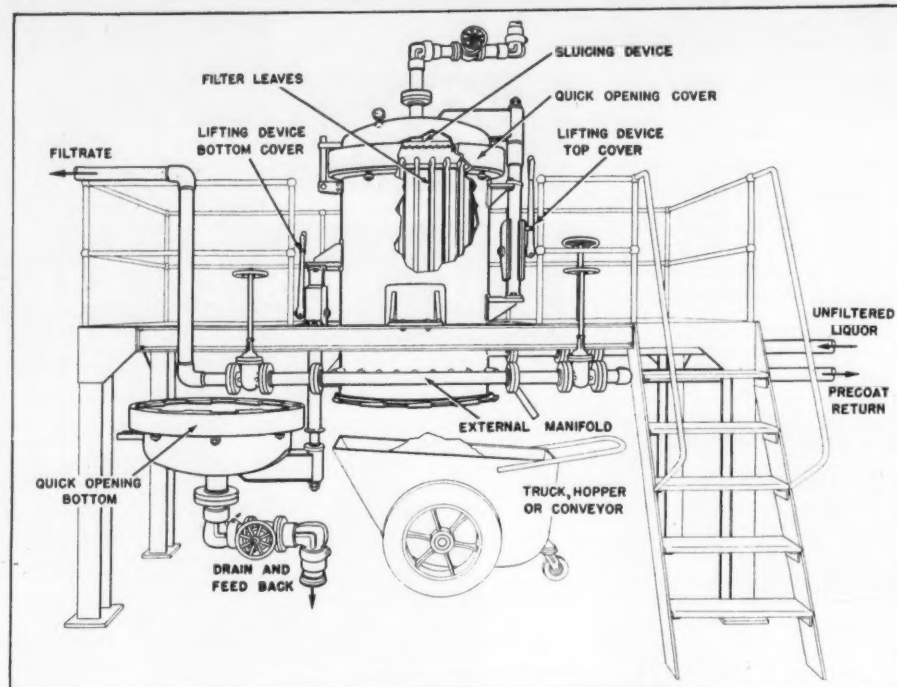
- * For the profitable and better processing of many Chemical, Food, Pharmaceutical and Grease Products.
- * Available in many types, materials of construction, and sizes, to meet specific requirements.
- * Designed to perform the important function of thorough mixing with the minimum power consumption, BUFLOVAK-DOPP Kettles process a better, more uniform product, at lower production cost.
- * Heating surfaces can be kept continuously free from accumulated material by special scraping agitators.
- * Safe, quiet, and dependable operation is insured by completely enclosed drive units equipped with roller bearings. Cut bevel gears operate in bath of oil.
- * Greater unit capacity...an increase in heat transfer... substantial savings in power...thorough mixing... and the complete discharge of processed batches, are benefits resulting from exclusive features in the design and construction of BUFLOVAK-DOPP Kettles.
- * The BUFLOVAK Demonstration and Testing Laboratory is equipped to process a small quantity of your material to determine the type equipment and accessories that will give you the most efficient results.
- * Write for complete information.

BUFLOVAK EQUIPMENT DIVISION

of Blaw-Knox Company

1579 Fillmore Ave.

Buffalo 11, N.Y.



*Processing
Equipment*

Dry cake is discharged from the leaves. Note how is used to sluice the cake from this type of filter. Air bottom pivots out of way

Solid Cake, Not Slurry, Is Recovered from Air-sluiced Pressure-leaf Filter

USES: Pressure-leaf filter was designed for applications where cake must be recovered for re-processing. It is useful not only in that type of application, but also where cake cannot be discharged to sewer system because of laws regulating the discharge of waste.

Features: Cake can be dried by air or inert gas, and is sluiced off by high-velocity air jet instead of water. Thus, recovered cake is dry or nearly so.

Description: As illustrated in drawing, filter tank bottom is arranged for quick opening — much in the same manner as the tank cover on conventional pressure-leaf filters. (Note that top cover on this unit is also quick opening.)

At completion of filtration cycle and after all of the remaining heel of the filter is drained back to unfiltered liquor storage, the cake is dried on the leaves by air or inert gas, as mentioned above.

After cake is sufficiently dry, bottom cover is swung out of the way and the spent cake sluiced off into suitable pan or truck placed under the filter. The air jet sluicing device is similar to water sluicing device, except that high-velocity air nozzles replace the water nozzles. Leaf design is modified by placing the outlet nozzles on

Bottom swings out of the way so dried cake can drop into pan or buggy underneath

side of the leaf so cake is not obstructed in its fall. For tenacious cake, vibrators may be used to aid discharge.

This type of filter is available in capacities ranging from 24 to 547 sq ft, either with the quick opening or with bolted closure. Filter tanks and leaves may be furnished in all common materials of construction, such as steel, stainless steel, monel, and nickel.

(Dry cake discharge filters are made by Enzinger Union Corporation, Dept. CP, Angola, N. Y. . . or for more information check CP 1831 on handy form, pages 2 & 3.)

Since January 1952, CHEMICAL PROCESSING has come to you with additional departments, helping you to find and read topics of your greatest interest . . . see Table of Contents, page 7.

High Efficiency in Heat Transfer Characterizes Mixer for Rubber and Plastics . . .

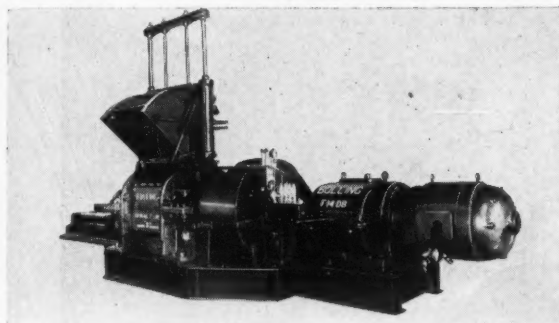
Available sizes can accommodate batches
from as low as 65 lb to as high as 450 lb

USES: Mixing of rubber and plastic stocks on batch basis.

Features: Finned design of heat transfer chamber allows for more efficient utilization of circulating medium. Split-end frame imparts strength and affords accessibility.

Description: Three available Bolling Spiral-Flow intensive mixers have capacity range from 65 to 450 lb; motor ratings are from 75 to 250 hp. Mixing rotors are fluted and are stated to give a better and faster dispersion of materials because of a different ratio of diameter to length.

A full-circle end shield on the rotors helps restrict passage



Mixer for batch of approximately 150 lb (1.5 specific gravity) with 125 hp gear had motor on one-piece base

of powders out through the ends. Beyond rotor ends are dust seals which are held by fork retainers easily removable for cleaning convenience. Anti-friction roller bearings are used in the split-end frame housing. Discharge door is of cast steel and designed for simple and inexpensive replacement.

(Available from Stewart-Bolling & Co., Inc., Dept. CP, 3196 E. 65th St., Cleveland 27, Ohio . . . or for more information check CP 1832 on handy form, pgs. 2 & 3.)

Bulletin features information on cleaning compressed air

Two-page bulletin gives details on device which dehydrates and cleans compressed air used for operating instruments.

Measuring 15" high x 9" diam, the unit when connected to a compressed air line removes entrained and vaporized water and oil, oil sludge, scale, and other foreign materials from the air. Rated capacity is 30 cfm at 100 psi. Component parts, details of operation, and specifications are illustrated and described.

Bul B-30 is issued by Hankison Corporation, Dept. CP, 240 Renton Bldg., 1501 Beaver Ave., Pittsburgh 33, Pa. When inquiring specify CP 1833 on handy form, pages 2 and 3.

APRIL, 1952

FAST ACTING!

BLAW-KNOX

QUICK OPENING DOORS

FOR PRESSURE VESSELS

Rim-type ring locks door quickly and securely. Opening is positively sealed by internal pressure. No bolts or lugs.

Blaw-Knox Quick Opening Doors are used extensively on curing chambers, vulcanizers, and similar equipment. Those in use today are made in diameters up to 8 ft. and withstand temperatures to 400° F. and pressures to 300 psi.

FEATURES OF DESIGN

- Operate mechanically or hydraulically.
- No lugs, bolts, levers, or sliding bars.
- Self-sealing gasket positively operated by internal pressure.
- Smooth functioning ball bearing davit type hinges.
- Sections made from rolled or forged steel. No castings.

May be adapted to either horizontal or vertical vessels.

PROCESS EQUIPMENT DEPARTMENT

BLAW-KNOX

DIVISION OF BLAW-KNOX COMPANY
2076 Farmers Bank Building
Pittsburgh 22, Pa.
Other Offices in Principal Cities

When inquiring check CP 1834 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

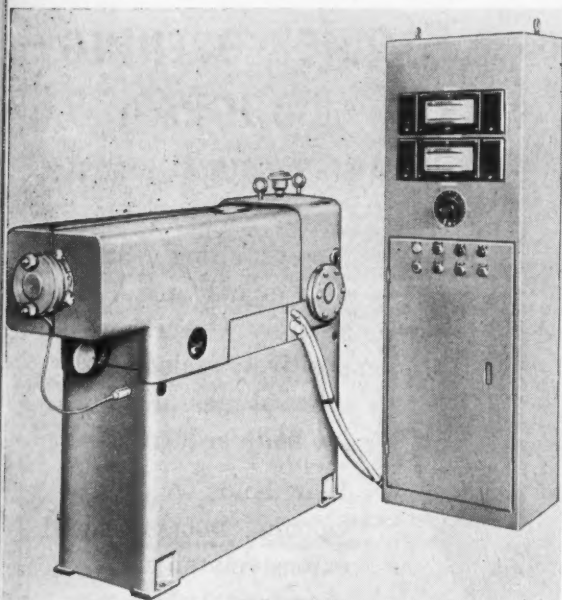
Faster operating die adapter gate on extruder permits easier changes . . .

2 1/2" electrically-heated unit features in general a more compact and streamlined design

Uses: Extrusion of plastic materials.

Features: Incorporated into model are the following: A more convenient control cabinet for left- or right-hand operation; a faster operating die adapter gate for quicker die and screen changes; a single fabricated steel base for both drive transmission and cylinder; a heavy duty cone gear for greater drive and longer life; and a more compact and streamlined overall design.

Description: Manufacturer's Model 50 is a 2 1/2" electrically heated unit. Feed screw is hollow bored of heat treated alloy steel with flame hardened flight surfaces.



Control cabinet allows for right- or left-hand operation

Proportioning type pyrometer controls are used and the replaceable cylinder liner is fabricated from Xaloy 396.

Complete accessories such as a tachometer, ammeter and tubing die are available.

(Manufactured by National Rubber Machinery Co., Dept. CP, Akron, Ohio . . . or for more information check CP 1835 on handy form, pages 2 and 3.)

Btu transfer rate is doubled with coil half the size . . .

tanks are heated in less time with compact, plate-type units that are easily installed

Uses: For uniform heating of tanks such as those used in bonderizing, parkerizing, acid pickling, plating, quench oil, metal parts washers, industrial degreasers.

Features: Plate-type units can be used wherever pipe coils are used. Desired Btu transfer is achieved with a unit only half the size needed using conventional methods, manufacturer reports. Units can be installed within half an hour or less by one man and a helper through use of quick-change hangers.

Description: Known as Platecoils, the units require less

Page 108

HOW MUCH DO FILTERS . . . and what can you do about it?

Have you ever thoroughly investigated both the direct and indirect cost of filter cloths in your plant? If not, the chances are you will be surprised to find that annual cloth replacement and maintenance cost alone runs from \$1.00 to \$4.00 per square foot of press area per year, depending on the utilization of your press, the product and the type of fabric you use. Other costs associated with use of cloths, such as the labor for scraping, handling, washing; breaking and redressing the press; and purchasing time expended in obtaining the cloth you need when you need it will probably be even greater, even if not as easily pinned down.

Here are three immediate reasons why you should consider switching to modern high-speed Niagara pressure leaf filters:

1. **Niagara Filters require no filter cloths.** Accurate case histories in our files show that some plants amortize their Niagara filters in a few years on this saving alone.
2. **Niagara Filters require less labor.** When you eliminate filter cloths, you eliminate the back-breaking and costly labor that goes with them. With Niagaras you get a quick, easy, clean operation that takes only a few minutes for one man between cycles.
3. **Niagara Filters provide greater utilization.** Reduced down time means more production time, which means higher production at your filter station. The filter works for you more hours per day—gives you many more gallons throughput with less installed filter area.

By switching to Niagaras, many press users have realized overall savings that amortize the cost of the new filters in months. We can show you detailed case histories from our files presenting the economic soundness of replacing existing filter presses with Niagara filters.

Entirely aside from savings, here are eight sound reasons for installing Niagara filters:

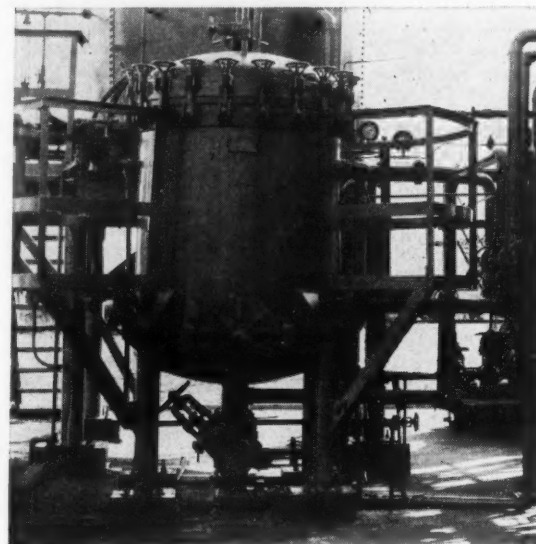
1. **Higher flow rates on an equal area basis.** Niagaras normally give flow rates 2 to 5 times greater than conventional cloth covered filters.
2. **Sparkling filtrate clarity.** Positive removal of solids to practically any degree of clarity you desire. In sanitary applications, 0-0 bacteria count can usually be secured in one filtration.
3. **No leakage.** Fully enclosed, pressure-tight construction eliminates drippage and fumes. Ideal for handling flammable, explosive, toxic, volatile, or highly obnoxious liquors.
4. **Wide capacity range.** Sizes range from 20 to 950 square feet of filter area, with average capacity of 10 to 425 G.P.M. in one compact unit. (Even larger areas are available in the new horizontal filter shown at right on the opposite page.)

5. **One-man operation and cleaning.** Single or multiple units can be operated and cleaned easily by one man. The entire leaf battery is accessible for easy cleaning.

6. **Corrosion-resistance.** The pressure leaf filter can more cheaply and readily be constructed of stainless steel, nickel, monel and other corrosion-resistant materials.

7. **Jacketed construction.** Niagaras can readily be supplied with steam jackets or special insulation.

8. **Excellent cake-washing characteristics.** Nearly true displacement washing is obtainable.



THIS NIAGARA FILTER, in large petrochemical plant, removes iron sulfide particles from solutizer solution.

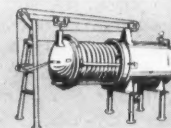
HOW THE MODERN NIAGARA PRESSURE LEAF FILTER WORKS

The leaves, which are the heart of these filters, consist of double faced rectangular screen assemblies bounded by a tubular drainage frame leading to an outlet nozzle. The unfiltered liquid is pumped into the closed pressure filter tank in which the leaves are placed, and is forced through the fine mesh screen on which the filter cake is formed by the solids in the liquid. Only the clear liquid reaches the inside of the leaves, flowing through the coarse center drainage wire, to the tubular frames and out through the leaf nozzles to the manifold. When the designated batch



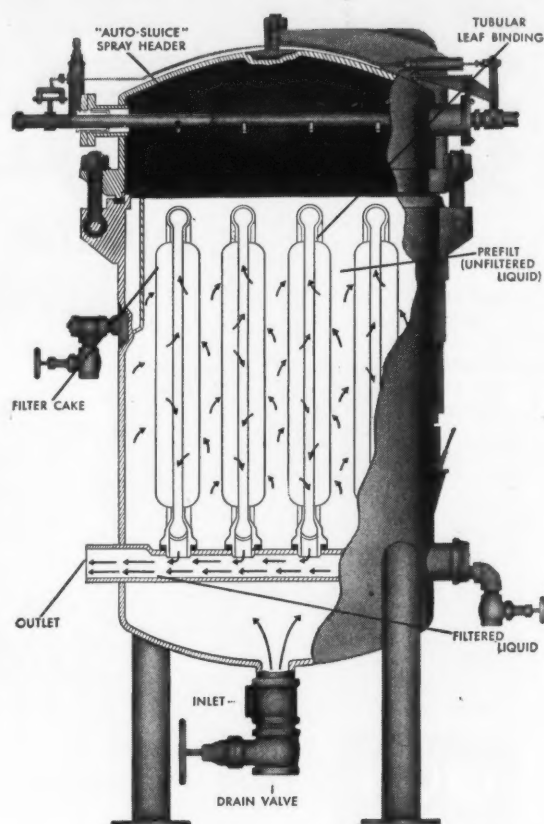
Niagara Filter
CORPORATION

IN EUROPE—NIAGARA FILTERS EUROPE, 36 Leidsegracht, Amsterdam-C, Holland



HORIZONTAL FILTERS for non-aqueous liquids and high solids, and cake recovery applications.

ER CLOTHS COST YOU?



has been completely filtered, or when the cake has nearly filled the space between the leaves, the filter is emptied and the filter cake is sluiced from the leaves with a hose or with automatic high pressure sprays. Sluicing is done without removing any parts from the filter. As a rule, the filter is ready to go to work again in 15 minutes to 1 hour, depending on its size.

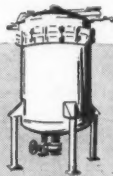
Reason for High Flow Rates

The rigid metal screens do not "give" under pressure—cannot obstruct flow channels in the drainage member as does sagging cotton cloth. Also, the filtrate drains by gravity as well as pressure. This combination of rigid metal leaves, plus bottom drainage, produces flow rates 2 to 5 times those of conventional filter presses.



STANDARD VERTICAL FILTERS for clarification and polishing.

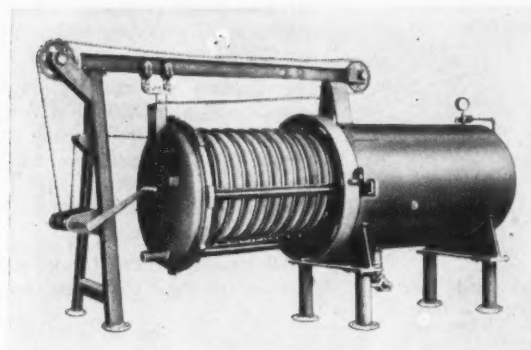
"AUTO-SLUICE" FILTERS—fully automatic cake sluicing.



There are no moving parts during filtration. This simple construction means lower maintenance costs, as any Niagara user will verify. Niagara filters are easy to keep clean and keep in operation.

Niagara's Five Helpful Filtration Services:

1. **Nation-wide field service.** Capable representatives in 24 cities.
2. **Complete testing facilities** help determine your requirements exactly.
3. **Pilot filter rental** enables you to "preview" Niagara performance in your plant, at low cost.
4. **Custom engineering.** A single filter or a complete system, designed for your exact needs.
5. **Installation and startup** are supervised by Niagara engineers, always on call.



NIAGARA'S NEW STYLE H* FILTER

for applications involving high per cents of solids

1. Gives 2-5 times the flow rates.
2. Cuts cleaning time to minutes.
3. Eliminates all cloth costs.

This new Niagara filter answers the need for a filter which can quickly discharge large quantities of semi-dry cakes. A variation of the standard Niagara design, it still retains all the basic advantages of Niagara vertical pressure leaf filters.

A retractable carriage permits all leaves to be withdrawn at once for rapid cleaning. One man can easily discharge as much as 150 cu. ft. of cake in a matter of minutes.

A new closure design, the Q/O* (quick-opening) cover, permits faster, easier opening and closing than ever before in a filter of this size.

The Style H* filter is ideal for filtration where high percentages of solids must be removed or where solids must be saved. It is also recommended for all standard liquid clarification where low headroom or other special reasons make its horizontal construction preferable to the vertical pressure leaf filter.

*Trade Mark Patent Applied For

NIAGARA FILTER CORP., 3007 Main St., Buffalo 14, N. Y.

Please send me ☐ General literature; ☐ Data on horizontal filters; ☐ Data on pilot filter rental service

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

PROCESSING EQUIPMENT

steel because the heating solution flows in channels formed by the joining of two embossed metal surface plates. Because of this construction, plate type unit has more heating surface in a given area than can be obtained with a pipe coil. Manufacturer reports a 22 x 19" unit weighing 95 lb has heating capacity of 2" pipe coil weighing 239 lb.

When maintenance is required, units are removed and placed in a matter of minutes without dumping the contents of the tank. Construction also provides strength and rigidity which permits use of the units in applications where conventional pipe coils are not adaptable.

(Development of the Kold-Hold Mfg. Co., Dept. CP, E. Hazel St., Lansing 4, Mich. . . or for more information check CP 1837 on handy form, pages 2 and 3.)

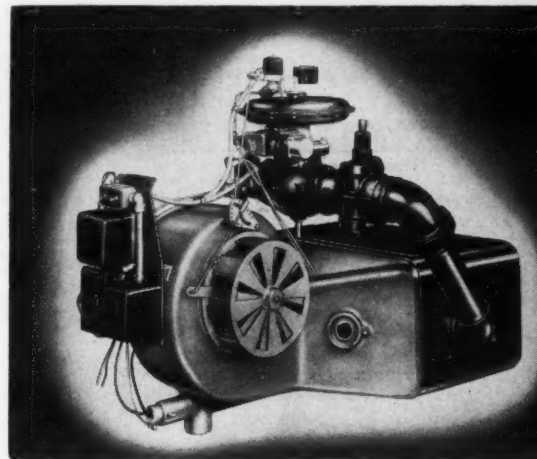
Compact, power-type burner available from 400,000 to 20,000,000 Btu/hr . . .

standard are such controls as automatic electric ignition and electronic flame failure protection.

Uses: Particularly designed for ashpit installation in furnaces or boilers.

Features: An electrically ignited pilot with an electronic type flame failure protection device furnished as standard equipment to give instant shut-off of main burner if flame failure should occur. Pilot is available as either intermittent or constant-burning type.

Description: Model 214 gas fired conversion burner.



Shipped factory wired and assembled

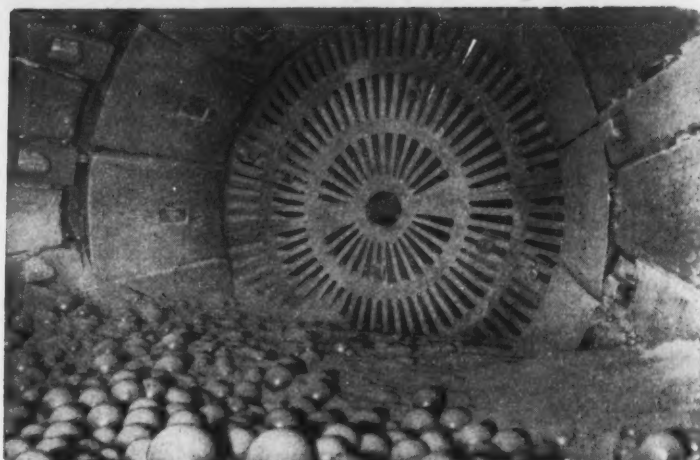
is a compact, power-type burner available in 11 capacities ranging from 400,000 to 20,000,000 Btu/hr installed. Shipped completely assembled including internal wiring. It only requires firing chamber preparation plus connection of external controls and gas and electrical supply lines.

Other equipment includes: "on-off" or "throttling" type diaphragm valves, constant air to gas ratio shutter, ceramic burner face, centrifugal blower type fan.

Pilot, ignition electrode and electronic flame electrode are mounted in fixed positions in a tubular assembly which can easily be removed for servicing. Pilot burner functions as both an atmospheric and blast type burner and has provision for primary air adjustment.

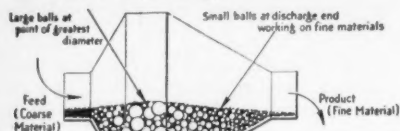
(Manufactured by Bryant Industrial Division, Dept. 17825 St. Clair Ave., Cleveland 10, Ohio . . . or for more information check CP 1838 on handy form, pages 2 & 3.)

When inquiring check CP 1836 on handy form, pgs. 2-3

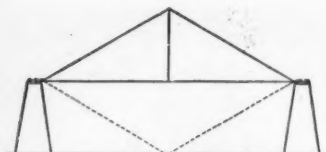


NATURAL BALL SEGREGATION

Here's what you see inside a Hardinge Conical Ball Mill. This unretouched photo shows the discharge end of the mill. Notice that all the large balls are in the foreground, near the feed end of the mill (where they belong for most efficient grinding).



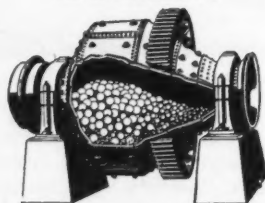
Ball segregation. . .



Truss-like structure. . .



No dead corners. . .



Less dead weight.

Write for Bulletin 17-B-13 for dry grinding; AH-389-13 for wet grinding.

The Conical Mill was pioneered by Hardinge 46 years ago. There are that many years of grinding "know-how" behind it.

The principle of the Conical Mill is sound. Note that the longitudinal cross section forms a truss. Strength is obtained without massive construction. Excessive dead weight, extra power and high operation costs are eliminated.

Balls, and material, are segregated by size, becoming progressively smaller toward the discharge end. Thus grinding energy is roughly proportional to size of material ground.

PROCESSING EQUIPMENT

Lucite float prevents oxidation of tank contents . . .

polished stainless steel tanks are ten to 100 gal capacity

Uses: Primarily designed for mixing and storage of photographic solutions. Can be used for the manufacture of photographic chemicals and other chemicals.

Features: Transparent lucite float — supplied with each tank — prevents air from reaching the solution and oxidizing it. Solution can be seen through the float.

Description: MT Series tanks are made in sizes from ten gallons up to and including 100 gallons. They are stainless steel, including self-closing spigots. All joints are welded; finish is polished.

The float is a formed, transparent lucite, circular cover with a flange of sufficient height around the circumference to assure adequate buoyancy. Diameter of the float is slightly less than that of the tank. Float has transparent lucite handle.

As illustrated, a mixer can be attached to stainless steel triangular post ex-



Stainless steel tank with mixer

tending above tank. When mixer is used, float must be taken out of tank, of course.

(Oscar Fisher Company, Inc., Dept. CP, 1000 N. Division St., Peekskill, N. Y. . . . or for more information check CP 1840 on handy form, pages 2 and 3.)

Don't miss the PROCESSING AND ENGINEERING DATA section on pages 204, 6, 8, and 10.

for HEAVY mixing MODEL TA

agitator kettle

AGITATOR
PARTS
QUICKLY
REMOVABLE
FOR EASY
CLEANING



GROEN
STAINLESS STEEL
STEAM JACKETED
TWIN-SHAFT
MIXER KETTLE

FAMOUS FOR ITS SANITARY EFFICIENCY

- Stainless steel from top to bottom. Completely sanitary — conforms to the most rigid Health Dept. requirements. Twin shaft operation for highest efficiency in mixing. Fully enclosed motor drives two shafts: (1)—at slow speed operating flexible, finger-like scrapers; and (2)—a secondary high-speed shaft equipped with any of a variety of beaters, blenders or mixers.

- Demountable shaft couplings permit entire agitator assembly to be removed in a few seconds for easy cleaning, and as quickly reinstalled. Cannot disengage in operation. And couplings equal strength of a solid shaft. Read all about this widely famous mixer in Bulletin TAK-2. Write for it now.

ASK US ABOUT
THE HIGH SPEED
ROTA-THERM
JACKET

Attains fastest cooking speed ever produced by any kettle! Multiple steam inlet design develops high velocity steam circulation instantly. No air pockets . . . no cool areas, possible. Gives all advantages of stainless steel plus swiftest operation. Ask for Bulletin RT-1.

GROEN MFG. CO.

4533 W. Armitage Ave., CHICAGO 39, ILL.

30 CHURCH ST. (HALF A CENTURY OF FINE KETTLES) 420 MARKET ST. NEW YORK 7 SAN FRANCISCO 11

When inquiring check CP 1841 on handy form, pgs. 2-3

CHEMICAL PROCESSING

HARDINGE
COMPANY, INCORPORATED

YORK, PENNSYLVANIA—240 Arch St. Main Office and Works
NEW YORK 17 • SAN FRANCISCO 11 • CHICAGO 6 • HIBBING, MINN. • TORONTO 1
122 E. 42nd St. 24 California St. 205 W. Wacker Dr. 2016 First Ave. 200 Bay St.

When inquiring check CP 1839 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

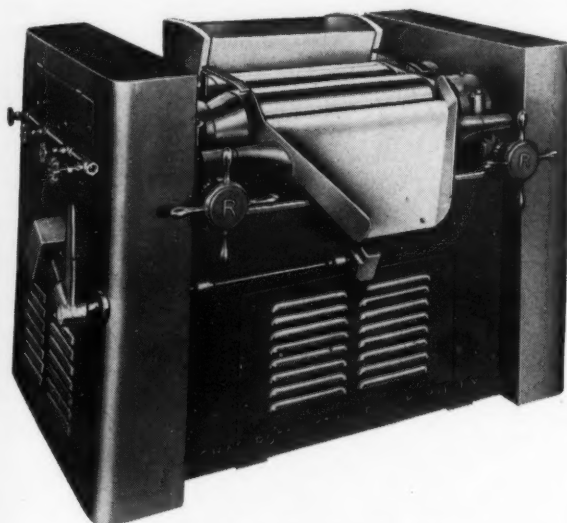
Grinding and dispersion take place along entire production surface of three-roll mill . . .

removable hoppers ride outside taper of rolls; rolls have thin wall, are cooled along full length

Uses: Three-roll mill for grinding or dispersion.

Features: Dispersion or particles size reduction is accomplished along the full production face of the rolls, as the new type of easily removed hoppers ride off the outside taper of the rolls. Latest type of thin-wall roll construction and full-length water-cooling assure uniform temperature control. Quicker cleaning is due to certain design changes.

Description: The No. 52T mills are made in two sizes: 14 by 32", and 9 by 24". Frame is of solid, one-piece cast construction for rigidity, minimum vibration, and main-



Three-roll mill for grinding or dispersion

tenance of roll alignment under severe operating conditions. Motor is mounted inside frame. Single-speed motor is standard, but two-speed motors can be provided if desired.

Balanced apron assures uniform pressure of the thin take-off knife along the full face of the roll and eliminates scoring of roll ends. This apron is quickly detached from front roll when cleaning. Down-time for cleaning is also reduced by utilizing special bearings in the adjusting hand-wheels through which the rolls can be quickly disengaged.

Parallel roll settings, to any desired pressure, are obtained with calibrated indicating dials which assure sensitive and accurate adjustment of the rolls. Setting is direct and, with no intermediate wearable parts, will not lose its effectiveness or accuracy, states manufacturer.

(Development of Charles Ross & Son Company, Dept. CP, 148-156 Classon Ave., Brooklyn 5, N. Y. . . or for more information check CP 1842 on handy form, pages 2 & 3.)

Sifter yields 2 to 8 sizes in single operation

Drawing and diagrams show dimensions of gyratory sifter. Table of wire cloth screen specs and illustrated mesh comparisons are presented in 8-page bulletin. Varied utility of sifter is freely illustrated. Applies to food prod-

(Continued on next page)



CHASE Sharkcraft SCUTTLES

THE PACKAGING PIRATE

THE ALL-CRINKLED MULTI-WALL BAG

THAT CUTS COSTLY BREAKAGE

IN THE PACKAGING OF:

- Farm Products
- Powdered Milk
- Mineral Concentrates
- Seeds • Chemicals
- Pharmaceuticals
- Fertilizers • Rock Products
- Meat Scraps and Tankage
- Starch Products



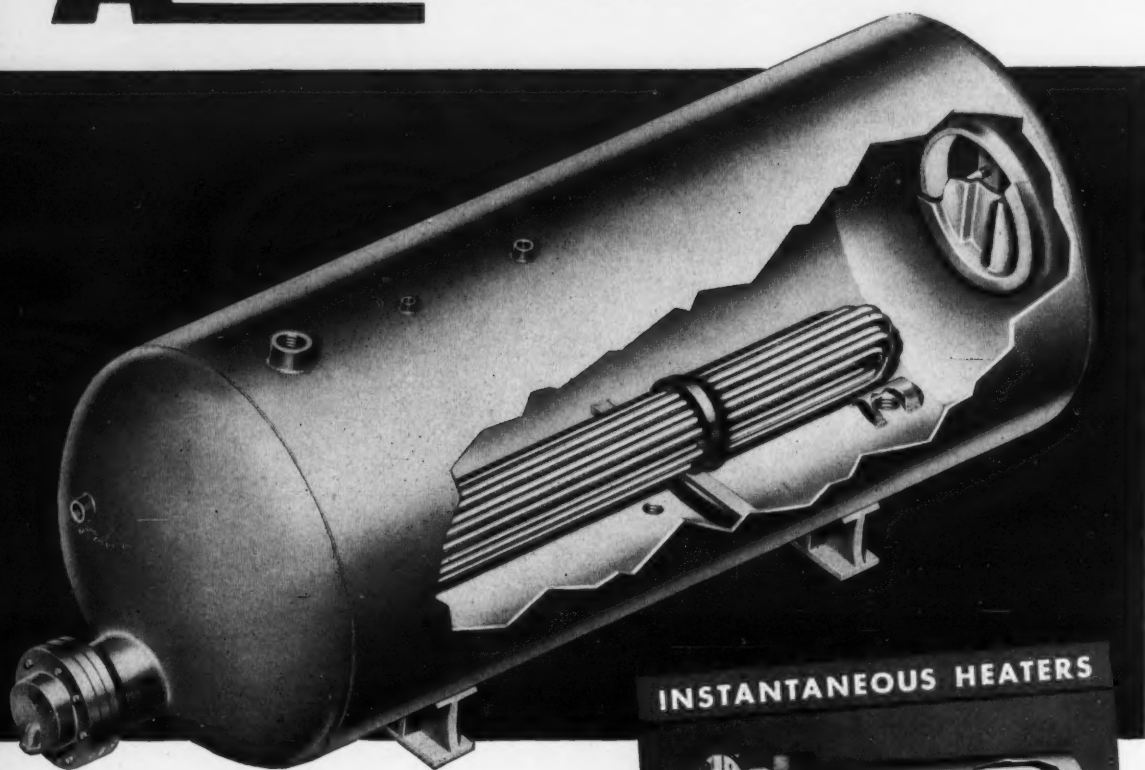
for Better Bags... Better Buy Chase!

CHASE BAG CO. GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, IL

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
PITTSBURGH • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • GOSHEN, IND. • PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY
OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • WORCESTER, MASS. • CROSSETT, ARK. • SAN FRANCISCO

When inquiring check CP 1843 on handy form, pgs. 2-3

ADSCO STORAGE HEATERS

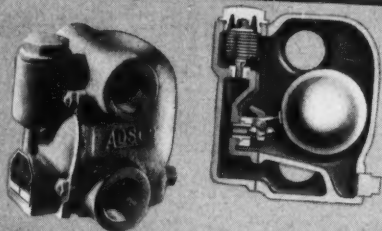


You get more than you ask for, when you buy an ADSCO storage heater . . . They are built to ASME code, whether inspection and stamping are required or not . . . Water spreader over cold-water inlet . . . Heavy rings in reinforced manhole give good gasket surfaces . . . Flange-quality steel used throughout . . . Tubes bent smooth and round . . . ADSCO heaters provide a constant, dependable source of domestic hot water and are especially suited for handling peak demands. Write for Bulletin 35-75C.

INSTANTANEOUS HEATERS



STEAM TRAPS



ADSCO
75 YEARS OF
LEADERSHIP

AMERICAN DISTRICT STEAM COMPANY, INC.
NORTH TONAWANDA, NEW YORK

When inquiring check CP 1844 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

(Continued from preceding page)

ucts such as coconut, oatmeal, peppers, spices, starch and processing products such as chemicals, minerals, cork, etc. Bul 07B6124B is available upon request from Allis-Chalmers Manufacturing Co., Dept. CP, 1151 S. 70th St., Milwaukee, Wis. When inquiring specify CP 1845 on handy form, pages 2 and 3.

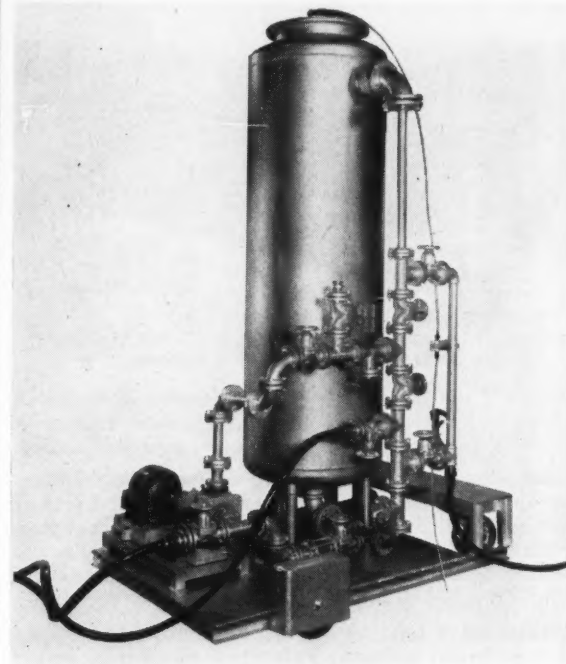
Mobility allows purifier to treat chromic acid solutions throughout a plant . . .

ion-exchange system improves anodic films, lowers voltage requirements and cuts plating rejects

Uses: Recovery and purification of chromic acid anodizing baths; reclaiming plating and rinse waters.

Features: Can treat several solutions located throughout plant; does not take up production space, easily stored.

Description: Mobile version of company's Illco-Way Chrome Purifier, as with the stationary model, is available in four standard sizes. Employing an ion-exchange system, the purifier eliminates necessity of discarding chromic acid and keeps contamination of anodizing solutions at a mini-



Mobile version of chromic acid purifier

mum. Resulting clean solution decreases voltage requirements and improves anodic films.

Similarly, in chromic acid plating operations, the clear solutions produced by method reduce current requirements, provide uniform plating and give fewer rejects.

Assuming an average contamination rate in an anodizing solution of 10 grams per liter of aluminum oxide per month, the volume of solution which could be handled by the four sizes, on a daily basis is: 2700, 5100, 7500 and 14,000 gallons.

(Manufactured by Illinois Water Treatment Co., Dept. CP, 900 Cedar St., Rockford, Ill. . . . or for more information check CP 1846 on handy form, pages 2 and 3.)

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

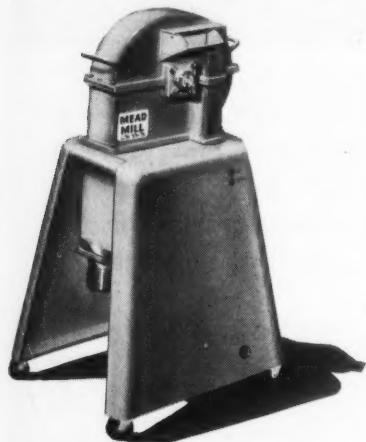
**Mobile unit pulverizes
50 to 100 lb material
per hour . . .**

grinds to specifications without
damage to molecular structure

Uses: Will pulverize any dry,
grindable material.

Features: Mobility; grinds to spec-
ifications without damaging molecular
structure.

Description: "Pony" Mead Mill is
powered by a 1 hp motor with an
output of 50 to 100 lb/hr. Unit is



Grinds up to 100 lb/hr

an impact type pulverizer. Mill speed
and fineness of screen used, determine
size of grind for any given material.

Construction is of either cast or welded
steel, and roto shaft of "Pony" model
is mounted in flange-assembled ball
bearings.

(Announced by Mead Mill Co., Dept.
CP, 14620 E. Seven Mile Road, De-
troit 5, Mich. . . or for more in-
formation check CP 1847 on handy
form, pages 2 and 3.)

Pictures models of Industrial dryers

Four-page bulletin describes drying
equipment for use in processing tex-
tile, food, rubber, chemical, and paper
products. Pictures 10 models, includ-
ing one which utilizes counter-air-flow
principle. External views are pre-
sented of models currently installed
and operating.

Bul 191 is issued by C. G. Sargent's
Sons Corporation, Dept. CP, Granite-
ville, Mass. When inquiring specify
CP 1848 on handy form, pages 2 & 3.

For more information on prod-
uct advertised at right, specify
CP 1849 . . . see information re-
quest blank between pages 2-3.



WHEN YOUR PROCESS REQUIRES VACUUM FILTRATION,

Come to
EIMCO

Eimco's experience, obtained by more than
half a century of service to the process industries,
will help make your vacuum filter fit the needs
of your process.

Eimco filters are not built as stock items.
They're individually designed and manufactured
so as to do a successful job for you in meeting
the overall requirements of your flow sheet.

May we send an experienced filtration engi-
neer to talk to you?

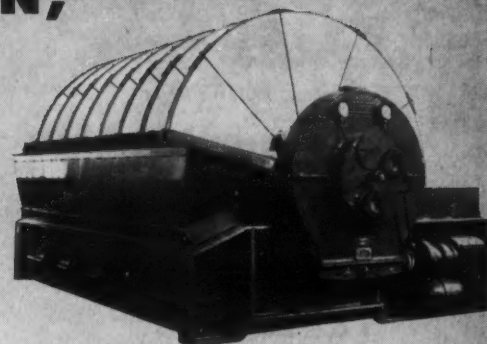
EIMCO
THE EIMCO CORPORATION

The Leader in the Manufacture of Vacuum Filtration Equipment
EXECUTIVE OFFICES AND FACTORIES - SALT LAKE CITY 10, UTAH, U. S. A.

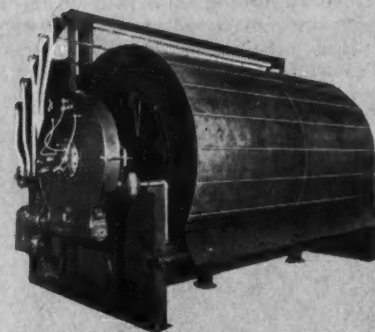
BRANCH SALES AND SERVICE OFFICES

NEW YORK, 51-52 SOUTH STREET • CHICAGO, 7319 SOUTH WALLACE STREET
BIRMINGHAM, ALA., 3140 FAYETTE AVE • DULUTH, MINN., 218 E. SUPERIOR ST.
EL PASO, TEXAS, MILLS BUILDING • BERKELEY, CALIFORNIA, P. O. BOX 240
KELLOGG, IDAHO, 307 DIVISION ST. • LONDON W. 1, ENGLAND, 190 PICCADILLY

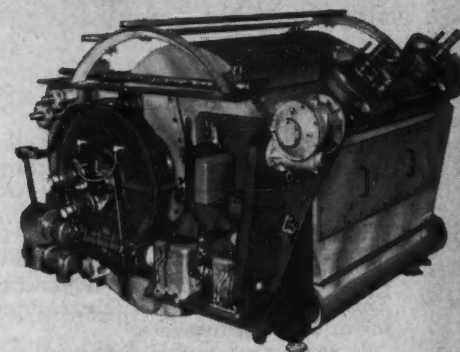
IN FRANCE, SOCIETE EIMCO, PARIS, FRANCE
IN ENGLAND, EIMCO (GREAT BRITAIN) LTD., LEEDS 12, ENGLAND
AGENTS IN ALL PRINCIPAL CITIES THROUGHOUT THE WORLD



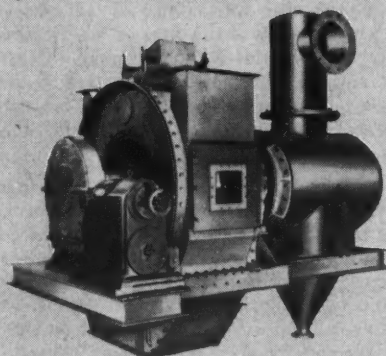
EIMCO CONTINUOUS DISC TYPE FILTER



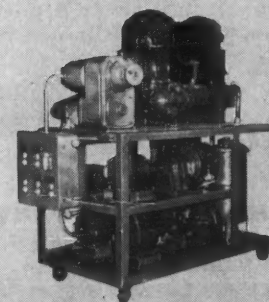
EIMCO CONTINUOUS DRUM TYPE FILTER



EIMCO PRECOAT TYPE FILTER



EIMCO CONTINUOUS DRYER



EIMCO LABORATORY TYPE FILTER

You can't beat an Eimco

Dekoron

PLASTIC ARMORED METAL

Instrument Tubing

LASTS UP TO 6 TIMES LONGER

- Cuts maintenance
- Conserves critical materials
- Easily fabricated and installed

Dekoron tubing cuts your instrument tubing costs two ways: costs less than expensive alloy or stainless steel tubing . . . lasts up to 6 times longer than other types of tubing even in the most corrosive atmospheres.

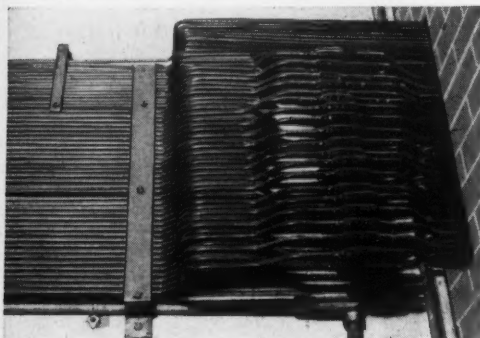


Photo of Dekoron instrument lines after 3 years' service in chemical plant. Copper tubing, formerly used, was destroyed in 6 months.

Dekoron instrument tubing has a coating of vinyl or polyethylene plastic tightly extruded over metal tubing to make it virtually impervious to moisture, salt, acid fumes, alkalis, or corrosive atmospheres.

Dekoron tubing lengths are joined with standard fittings covered with plastic tape. There's no expensive painting, rust-proofing or other maintenance.

If you have a corrosion problem, write for data sheet "Dekoron — a Better Kind of Corrosion-Resistant Instrument Tubing." Tells all about Dekoron tubing . . . also tells how Samuel Moore & Company coats customers' tubing and lowers instrument tubing replacement costs.

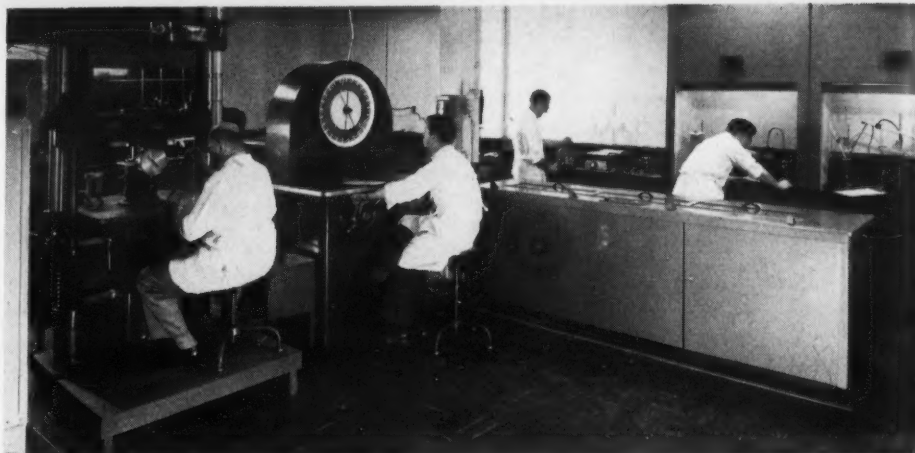
A-5095

Dekoron® tubing

SAMUEL MOORE & COMPANY
Dekoron Tubing Division
MANTUA, OHIO

*For the
Laboratory*

Left to right — Hveem test on compression machine, rubber powder test, volatile solvents distillation from rubber



Rubber Roads Call New Laboratory Into Being

Since the first rubber road was laid in 1949, there has been an increasing amount of data to be evaluated

General view of the laboratory



IN MAY, 1949, 1000 feet of highway paving was laid down Route 250 near Richmond, Va. It wasn't an everyday occurrence — it was the first of a series of test strips set up by the Natural Rubber Bureau to test the use of natural and reclaimed rubber powder in the asphalt paving of our streets and highways. Since then, test strips have been put down in 13 states and Canada.

By using five to six percent rubber in the paving, plastic flow can be cut to about 12% of that of the "raw" paving. Similarly, resistance to compacting can almost be tripled. But these figures are based on previous laboratory work done in Europe. The Bureau, sure that it had something of practical value to the highway engineer, realized that factual proof would require extensive laboratory data as well as on-the-spot results from their test strips.

Last January the Bureau opened its Research Laboratory in Rosslyn, Virginia, just across the Potomac from Washington.

While the Bureau feels that results of road tests indicate

superior weathering, shock, and vibration characteristics for rubber paving, they are quick to point out that they have no preconceived notions which they mean to prove.

Basic aim of the laboratory is to fully determine the extent of advantages brought about by addition of rubber to paving material. Program calls for tests of natural, reclaimed, synthetic, and other rubbers. The laboratory, which itself was a one year problem in development, is equipped for Hveem, Marshall, and Hubbard stability tests. It includes special refrigerating, heating, and specimen preparation equipment. And, of course, it has its share of other materials testing equipment and chemical equipment.

In developing original test procedures, the lab will adhere to the standards of the ASTM and the American Association of Highway Officials. Scope of their work, the Bureau feels, may well take them into some of the problems of paving in general, into special problems like airport paving, and certainly into the basic problem of "What makes a good road?"

Displaces Forty-one Liters of Free Air Per Minute at Atmospheric . . .

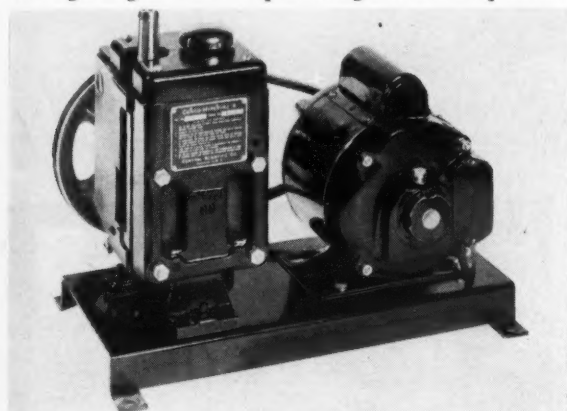
A second stage comes into operation as pressure drops so that vacuum pump can reach 0.1 micron

USES: High-speed, high-capacity vacuum pump is especially recommended for use with oil diffusion pumps.

Features: Secondary stage of the pump does not come into operation until pressure has dropped. Thus, at or near atmospheric, pump takes advantage of higher capacity single-stage operation.

Description: Hypervac-4 Pump is a quiet, compact, two-stage unit with a free air displacement of 41 liters per minute of free air. Pumping speed at one micron is 0.35 liters per second. It can attain an ultimate vacuum of 0.1 micron. Ratio of pumping speed at one micron to that at atmospheric approaches 51%.

Unit uses two complete stages. One of these is a secondary or backing stage with the double purpose of de-gassing the oil and producing a low back pressure



Speed is 0.35 liter per second at 1 micron

on the primary stage. Secondary stage is automatically by-passed at higher pressures to give full use to the large capacity of the primary stage. Large passageways leading to the primary stage permit rapid diffusion when very low pressures are reached.

Dimensions of the pump are $9\frac{1}{2} \times 5 \times 10\frac{3}{4}$ inches high. It is powered by a $\frac{1}{4}$ -hp motor. When mounted on same base, motor and pump require floor space of $9\frac{1}{2} \times 16$ inches.

(Developed by Central Scientific Company, Dept. CP, 1700 Irving Park Rd., Chicago 13, Ill. . . . or for more information check CP 1851 on handy form, pages 2 & 3.)

Lists specs of anti-backlash speed changers

Miniature speed changers serviceable where the backlash between high and low shafts must be zero or a very low value. Accompanying diagrams show how backlash is eliminated in single and multiple units. Data sheet No. 7 is issued by Metron Instrument Company, Dept. CP, 432 Lincoln St., Denver 9, Colo. When inquiring specify CP 1852 on handy form, pages 2 and 3.

APRIL, 1952

NEW! NEW!

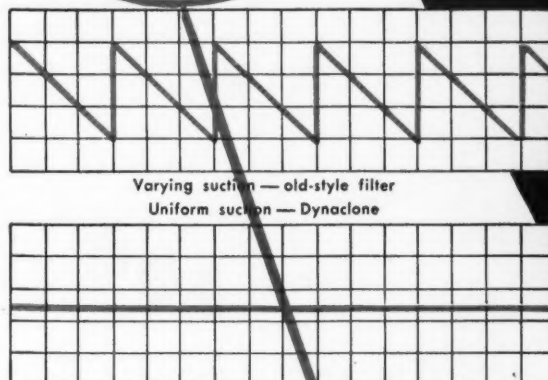
NEW Cloth Screen Dust Filter

SLY

DYNACLONE*

*You saw
this ad
2 years ago*

offers **5 NEW ADVANTAGES!**



Varying suction — old-style filter
Uniform suction — Dynaclone

1. Eliminates mechanical shaking.
2. Provides uniform suction at dust source.
3. Assures longer bag life . . . 4. minimum maintenance.
5. Keeps itself automatically and continuously clean without additional power or equipment.



Send for descriptive bulletin
just out on the new Sly
Dynaclone — the ultimate
in filter performance.

*PATENTED

This revolutionary new dust filter is another Sly first. Extremely simple and thoroughly dependable, it eliminates entirely the gremlin of mechanical shaking and provides uniform suction of air at dust source.

This uniform suction is achieved by a simple device which cleans the filter bags successively by a reverse flow of air—the same suction which draws the dust onto the filter cloth is reversed to blow it off.

Since this reverse air suction operates continually, the new Sly Filter requires no shutdowns for removing dust from the cloth.

No mechanical shaking or flexing device is needed, eliminating all strain and wear.

The **Dynaclone isn't NEW any more!** It has been quietly at work in many industries with results beyond hopes and expectations.

The result of long experimental and comparative tests, the Sly Dynaclone has thoroughly proved itself. It provides substantial savings over any other type of cloth screen dust collection. Write for complete information.

SLY PIONEERS and LEADERS in
INDUSTRIAL DUST CONTROL

THE W. W. SLY MANUFACTURING CO.
4754 Train Avenue • Cleveland 2, Ohio

NEW YORK • CHICAGO • PHILADELPHIA • SYRACUSE
DETROIT • BUFFALO • CINCINNATI • ST. LOUIS
INDIANAPOLIS • BIRMINGHAM • LOS ANGELES • TORONTO

When inquiring check CP 1853 on handy form, pgs. 2-3

NEW!

Dielectric Sample Holder

for Measurement of Solid

Dielectric Properties

60 cycles to 100 Mc

This new sample holder can be used with bridges, slotted lines and susceptance variation circuits. It makes possible the determination of dielectric constant and dissipation factor (losses) of solid materials, placed between metallic electrodes, over a very wide range—60 cycles to 100 Mc.



Type 1690-A Dielectric Sample Holder... \$395.00

- ★ Range—dissipation factor measurements to 100 Mc; dielectric constant to 500 Mc
- ★ Agrees with ASTM D-150 specifications
- ★ Electrodes 2 inches in diameter—optically flat surfaces within a few wavelengths
- ★ Precision-ground micrometer screw drives movable electrode—spring-loaded drive automatically disengages when top electrode seats on sample
- ★ Vernier capacitance readings to within 0.004 μf makes possible great accuracy in susceptance variation measurements

Write For Complete Data

GENERAL RADIO Company 275 Massachusetts Ave.
Cambridge 39, Mass.
90 West St. NEW YORK 6 920 South Michigan Ave. CHICAGO 5
1000 North Seward St. LOS ANGELES 38



When inquiring check CP 1854 on handy form, pgs. 2-3

FOR THE LABORATORY

Stirring device simulates hand action, does thorough job...

is particularly suited for agitation in flasks

Uses: For stirring chemical reactions in flasks, where conventional stirring would not be sufficient.

Features: Provides a wide variety of agitation with improved distribution of stirring, particularly around the bottom periphery of the flask



Stimulates hand stirring all around the flask

where heat is usually applied. Also excellent in reactions that require constant flexing, or that require distillation under reduced pressure, since rod is sealed by rubber membrane of the stopper.

Description: Rotostir device consists of an aluminum disc with a $\frac{1}{4}$ " glass rod and rubber stopper. Stopper is made with internal membrane which provides flexible movement of the glass rod as well as effective sealing. One each of sizes 6, 7, 8, and 9 stoppers are supplied to fit various size flasks.

Straight glass stirring rod rotates in such a manner to simulate hand stirring. Almost the entire length of the rod moves, and it may be adjusted while in operation to provide more or less sweep as desired. Glass rod is part of the flask and stopper and is easily removed from stirring motor when necessary. Cleaning and assembly are easily done.

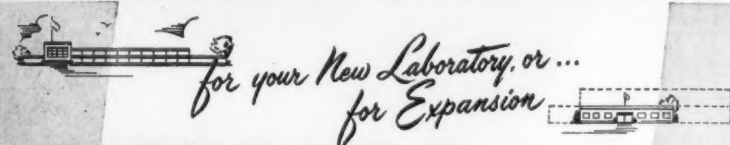
(Product of Central Scientific Co., Dept. CP, 1700 Irving Park Rd., Chicago 13, Ill. . . . or for more information check CP 1856 on handy form, pages 2 and 3.)



FRUSTROSITY* CASE No. 68: Mr. Wrongflo and his process are both suffering. If he had a 1952 Brookfield Viscometer at hand, he would know all the viscosity answers — could make determinations directly in centipoises in a matter of seconds in lab, plant, or both. Whether the materials you work with are Newtonian or non-Newtonian, you owe it to your wife, customers and co-workers to get up-to-date information on Brookfield Viscometers adaptable to any problem from less than one to 32,000,000 centipoises. Ask your Lab Supply House or drop a line to Dept. A, Brookfield Engineering Laboratories, Inc., Stoughton, Mass.

*FRUSTROSITY is that frustrated condition a man gets into when his problem is Viscosity Determination or Control and he hasn't asked BROOKFIELD.

When inquiring check CP 1857 on handy form, pgs. 2-3



METALAB offers you
the Finest in
LABORATORY EQUIPMENT

WITHIN YOUR BUDGET

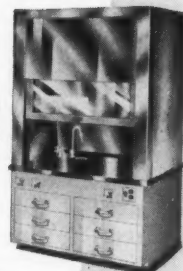


Let Metalab advise you on

- How to plan your Laboratory for greater efficiency.
- How Interchangeable Sectional Units are used.
- How to get the most for your laboratory budget.

Our new modern plant is geared to give you the close cooperation and rapid service you require.

Rush your problems to us today!



Write for our complete catalog on Laboratory Furniture and Equipment.

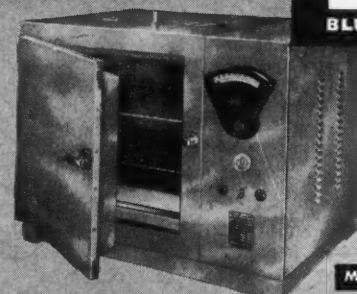
SECTIONAL LABORATORY FURNITURE
and EQUIPMENT by

METALAB
Equipment Corp.

230 Duffy Ave., Hicksville, L. I., N. Y.

When inquiring check CP 1855 on handy form, pgs. 2-3

HI-HEAT



MODEL AHH-19

MODEL AHH-19 GRAVITY CONVECTION OVEN

ALL ELECTRIC * ALL STAINLESS STEEL * FULLY AUTOMATIC TEMPERATURE RANGE FROM 100° F TO 800° F

Equipped with 3 heat switch for low, intermediate, and high temperatures. Double walled housing and door of polished stainless steel inside and out. All six sides have 5" of dual MODELLA insulation. Unconditionally guaranteed double-bank Modella heating element insures positive temperature uniformity. Two stainless steel shelves that are adjustable and removable.

Model AHH-19: Inside dimensions: 19" W x 15" H x 18" D
Current consumption: 18 amps on 230V.

Voltage: 230/1 ph./60 cycle A.C.

Also available in 800 F series:

Model AHH-12...12" x 12" x 12" I.D. \$495.00

AHH-16...16" x 16" x 14" I.D. 590.00

AHH-24...24" x 24" x 20" I.D. 810.00

* Other models for 1000° F and 1200° F operation

\$690.00

* CONTACT YOUR LOCAL DEALER or

BLUE M ELECTRIC CO.
306-8 W. 69th ST. CHICAGO 21, ILL.

When inquiring check CP 1858 on handy form, pgs. 2-3

CHEMICAL PROCESSING

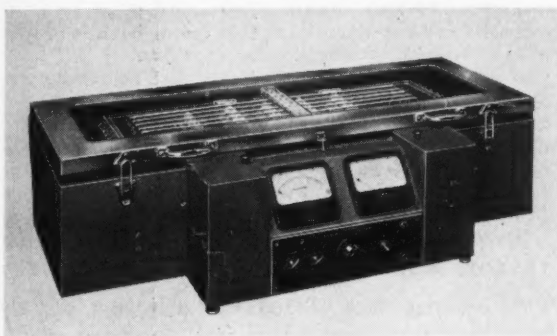
Cuts electrophoresis time to a small fraction of conventional . . .

filter paper technique resolves amino acids in 4 to 6 hours instead of 24 to 48

Uses: For electrophoretic studies of small quantities of amino acids, proteins, or a number of other complex ions or colloids.

Features: Time to run such a study (conventionally about 24 to 48 hours) has been cut drastically. While running time varies widely with the substance being tested, four to six hours has been found to be usual duration.

Description: Electrophoresis studies can be made on filter paper in the Ionograph. As with chromatography, both one- and two-dimensional work can be done. Instrument accommodates up to seven strips of filter paper



Controlled application of 2500 volts separates ions

of varying lengths. Strips are first soaked in buffer solutions then placed between electrodes. Connections to the ends of the strips are made with agar bridges — which have been found to prevent pH changes that would invalidate findings. Sample is dropped on center of strip.

Instrument supplies from 0 to 2500 volts (up to 30 ma available) across the strip. Adequate safety switch system prevents shocks and accidental contacts. Further precaution is used to insure reproducible results: temperature control, with water-saturated helium gas blanket. Temperature control is effected by a double-walled cover and walls, through which the coolant circulates. Temperatures close to 0°C are attainable — usually best performance is obtained near 4°C.

Two-dimensional work is carried out by a technique similar to the chromatographic technique. A wide sheet of filter paper is used with the first run spreading the tested substance along one margin. When the second run is made at right angles, groups of substances which have been separated in the first run are broken into individual materials or smaller groups across the width of the sheet.

Housing is 11 x 39 x 22 inches deep and is equipped with leveling bubbles so that buffer siphoning by the bridges can be prevented.

Explanation of the method can be found in McDonald et al, Journal of Colloid Science, Vol 6, No. 3 (June 1951).

(Ionograph is available for immediate delivery from Precision Scientific Company, Dept. CP, 3737 W. Cortland St., Chicago 47, Ill. . . . or for more information check CP 1859 on handy form, pages 2 and 3.)

Why your machinery and motors last longer with LINK-BELT Fluid Drive's constant

CUSHION ACTION

IF YOUR MACHINE loads are of the high inertia, repetitive shock or high starting torque type, Link-Belt's Fluid Drives can save you money.

Constant CUSHION ACTION gives you the shock absorption and overload protection you need. More—because shock load service factors can be disregarded, you can use power transmission equipment of lower horsepower.

Check the three curves below. They demonstrate three exclusive advantages of CUSHION ACTION. And for more detailed information, write for Book 2485. In it you'll find all the facts on five types of Link-Belt Fluid Drives — Electrofluid Drive, Electrofluid Gearmotor, Fluid Drive, Fluid Gear Drive and Fluid Coupling Drive.



Cutaway shows simple rugged construction of Link-Belt Fluid Drive

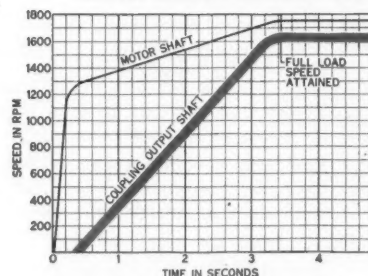
LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, Factory Branch Stores and Distributors in Principal Cities.

LINK-BELT
FLUID DRIVES

12,654

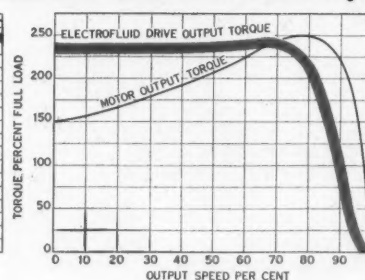
Here's proof—

that LINK-BELT CUSHION ACTION offers you real savings . . .



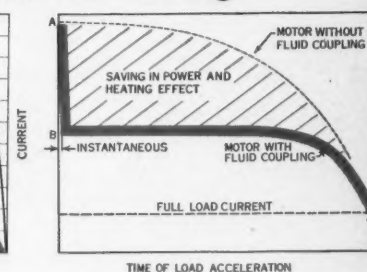
Smooth acceleration

Typical motor and coupling acceleration curves for a high-inertia load show how CUSHION ACTION smoothly and gradually accelerates the load, saving wear and tear on vital equipment.



No overmotoring

Compare the output torque of a motor with and without the fluid coupling. Because motor accelerates free of load, it reaches maximum pull-out torque that might otherwise require a special type of oversize motor.



Low starting current

As these current consumption curves show, with the fluid coupling, motor starting current drops instantaneously to less than half the starting current required by a motor without fluid coupling. Difference represents power savings, reduced heating.

When inquiring check CP 1860 on handy form, pgs. 2-3

Yours HELPFUL IDEAS

on Process Drying Baking • Curing

of Chemicals • Ceramics
Fabrics • Fibres • Foods
Leather • Paper • Plastics
Rubber and Wood
Organic Finishes on
Metal or Wood • Cores
and Electrical Insulations

This concise book presents the latest ideas on baking or drying in batch type or continuous ovens of various types by means of recirculating convection heating to assure uniformity of product and production speed. . . . Profusely illustrated with installation pictures and diagrams.

It will prove mighty helpful in sizing up your present or future heat processing requirements.

Write for
Catalog
No. 122



W. S. ROCKWELL COMPANY
GEHRICH OVEN DIVISION

220 Elliot Street • Fairfield, Conn.

When inquiring check CP 1861 on handy form, pgs. 2-3

FOR THE LABORATORY

**Light, tough qualities
are dessicator
features . . .**

made of cast aluminum alloy, it
absorbs punishment

Uses: For general lab work, conditioning of samples, etc.

Features: Alumatoy dessicator is light and unbreakable, cannot be damaged by bumping or dropping, heating or cooling.

Description: Dessicator is 4 1/2" square, composed of cast aluminum alloy body and cover. Ground joint seal assures air-tight closure while



Lightweight dessicator

the aluminum body dissipates heat quickly. Finish is of baked grey metallized Hammerloid.

(Product of Laboratory Industries, Inc., Dept. CP, 4710 W. North Ave., Chicago 39, Ill. . . . or for more information check CP 1863 on handy form, pages 2 and 3.)

**Polyethylene beakers
now available
in 2 sizes . . .**

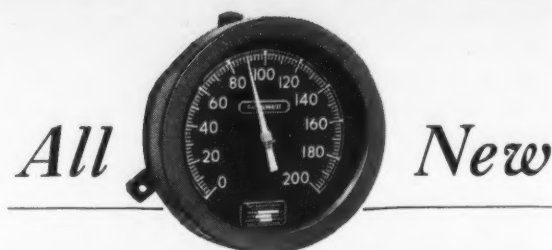
250 and 400 ml low form beakers
recommended for use to 150°F

Uses: For lab use where reagents would etch glass or become contaminated in glass beakers.

Features: Unbreakable beakers are recommended for use where temperatures do not exceed limits of -20 to 150°F.

Description: Polyethylene beakers in 250 and 400 milliliter sizes are one-piece moldings. They are of the same design as low form glass beakers of the same size. Pouring spout is molded into lip.

(Announced by American Agile Corporation, Dept. CP, P.O. Box 168, Bedford, Ohio . . . or for more information check CP 1864 on handy form, pages 2 and 3.)



TAYLOR 6" DIAL

shows temperature, pressure or load at a glance!

For Temperature, mercury, gas, organic liquid (Monolex) or vapor actuated systems to fit nearly every type of application.

For Pressure, range spans from 12 psi to 20,000 psi are available using Bourdon springs or C springs of appropriate metals for required service.

For Load, standard tension and compression load elements are incorporated to use a new mercury Bourdon spring.

New movement design eliminates linkage errors, means more dependable accuracy throughout the range span.

Fume and moisture proof case may be face or flush mounted, panel or field.

6" Dial with bold numerals and graduations is easy to read.

Electric alarm mechanisms, easily and quickly adjusted, available optionally.

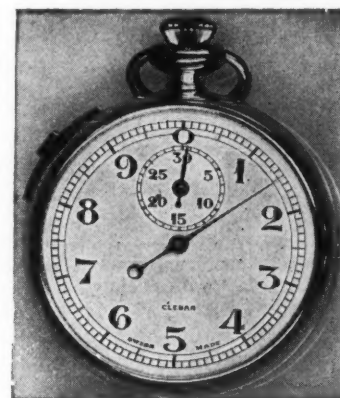
Ask your Taylor Field Engineer, or write for Bulletin 98214. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

When inquiring check CP 1865 on handy form, pgs. 2-3

Clebar

the stop watch of
split second accuracy



#601

Decimal Timer for Time Study, minute divided into hundredths, side slide starts and stops hands, fly-back from crown, 7 jewels, non-magnetic, 30 minute register. SNAP-BACK ACTION.

There is a Clebar stop watch for every precision timing purpose. Write for new **FREE** catalog which illustrates more than a score of models.

CLEBAR WATCH AGENCY

521 FIFTH AVENUE, NEW YORK 17

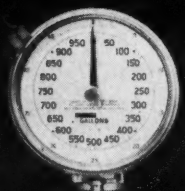
When inquiring check CP 1866 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Accurate BATCH METERING with NIAGARA VISIBLE DIAL METERS

Just set the dial on zero before each delivery and get highly accurate batch measurement of liquids—with no fear of inaccuracies through errors in reading. Niagara Visible Dial Meters are available in a wide range of sizes for liquids of all types. Choice of vertical dial with hands or setback figure rollers.

Fill out the coupon with your particular requirements and let us help you solve your batch metering problems — today.



**BUFFALO
METER CO.**
2892 MAIN STREET
BUFFALO, N. Y.

Please send me full information on use of
Niagara Liquid Meters for:

Liquid.....
Temp.....°F. Pressure.....p.s.i.
Flow rate.....g.p.m.
Maximum Batch.....gals.
Company.....
By.....
Address.....

When inquiring check CP 1862 on handy form, pgs. 2-3

FOR THE LABORATORY

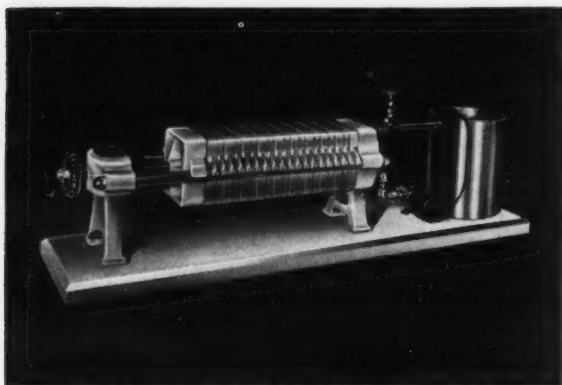
Offers precise control in filtering virtually all liquids on lab or pilot plant scale . . .

plates and frames are exactly proportioned to full-scale production models

Uses: Filtering operations on laboratory or pilot plant scale.

Features: Can be used to filter virtually all liquids; offers precise control of operations.

Description: Laboratory model Valley filters presses are of aluminum construction and have 6 x 6" recessed



Plates and frames are of special corrosion-resistant aluminum alloy construction

plates (or plates and frames) of special corrosion-resistant aluminum alloy which are exactly proportioned to full-scale production models. Equipped with its own slurry tank (seen in photo), the laboratory model is mounted on a sub-base and is of sturdy construction. A single phase motor and pump are integral parts.

Other Valley filter presses are available in sizes from 6 x 6" through 42 x 42" in any of the available metals.

(Manufactured by Valley Foundry and Machine Works, Inc., Dept. CP, 2718 East Ave., at Highway 99, Fresno, Calif. . . . or for more information check CP 1867 on handy form, pages 2 and 3.)

This sixty cycle source really gives 60 cps . . .

precision of five parts per million per °C is reported for this stroboscopic power supply

Uses: Source of precise sixty cycle per second current for stroboscopic units. Power supply might also be used as a secondary frequency standard for microsecond timing and so forth.

Features: Over a wide range of input voltage and frequency it produces AC within five parts per million per °C of sixty cycles per second.

Description: Model 375, a rack-mounting power supply, provides sixty watts of useful power. Precise output regulation is available even with input voltage variations from 90 to 125 volts, frequency variations from 50 to 400 cps. Though output frequency is fixed, voltage is continuously variable from 0 to 150 volts. A 0 to 150 volt AC meter monitors the output.

(Designed and built by Ampex Electric Corporation, Dept. CP, Redwood City, Calif. . . . or for more information check CP 1868 on handy form, pages 2 & 3.)

NOW...

**ALLIS-CHALMERS
THERMO-DECK
Heating Unit**

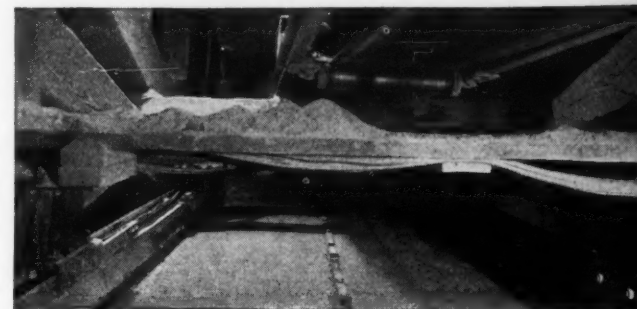
SCREEN FINE, MOIST MATERIALS

Without Blinding!

NO "TIME OUT" to clear fine or medium mesh screen cloth! You can screen fine, moist non-combustible materials *continuously* with new *Thermo-Deck* heating unit.

INCREASED CAPACITY! Heated screen cloth *remains* open, permitting more tonnage through the screen and better separation.

LOWER COSTS! Operating records show that heated screen cloth lasts up to three times as long when cloth does not have to be pounded free of blinding material. The *Thermo-Deck* heating unit can be easily applied in the field. Your nearby A-C representative can give you more details. Allis-Chalmers, Milwaukee 1, Wisconsin.



POWER ON — *Thermo-Deck* heating unit keeps screen cloth clear on screen handling fine, moist material.



POWER OFF — Troublesome blinding results on same screen when *Thermo-Deck* heating unit is turned off.

Send for...

New 8-page bulletin containing complete facts on operation and application of the *Thermo-Deck* heating unit.

Bulletin 07B7812

A-3619

Thermo-Deck is an Allis-Chalmers trademark.

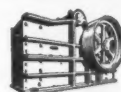
ALLIS-CHALMERS



Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.



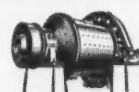
Pulverator



Jaw Crushers



Gyratory Crushers



Grinding Mills



Vibrating Screens

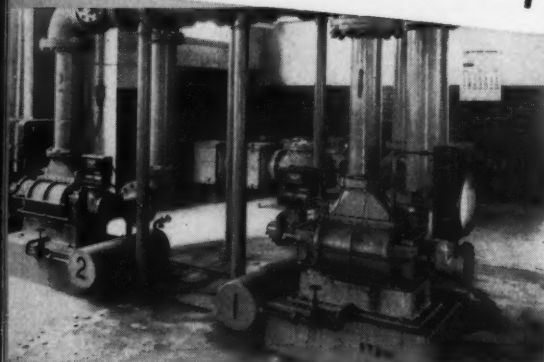


Kilns, Coolers, Dryers

When inquiring check CP 1869 on handy form, pgs. 2-3

MEASURE THESE VALUES WHEN YOU BUY METERS

Accuracy • Capacity • Compactness



Part of an installation of nine R-C Positive Displacement Meters in large chemical plant. Capacities from 3,000 cfh to 130,000 cfh.

Industrial buyers rate R-C Positive Displacement Meters "tops" in these basic essentials.

Accuracy—Not affected by pressure, wide variations in loads or other variables. Simple design, with no vanes, valves or small parts, results in maintained accuracy over long years of operation.

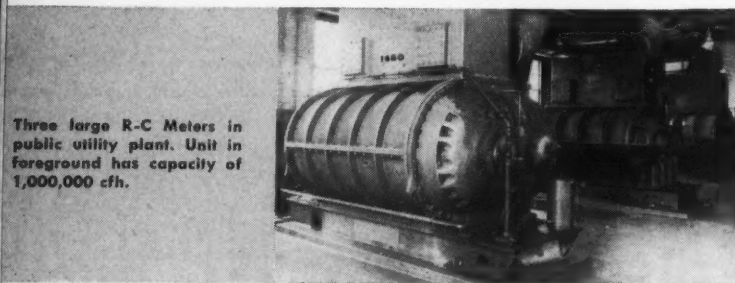
Capacity—from 4,000 cfh to 1,000,000 cfh in one unit, to meet practically any industrial metering requirements. Ample ability to absorb overloads.

Compactness—foot for foot of capacity, R-C Meters are the smallest made for industrial use. Can be "tucked away" in relatively small space without loss of valuable production area.

These values have long been proved by large and small industrial plants and public utilities. More R-C Meters are used by gas producing plants, for their own manufacturing and for commercial customers, than any other make. For details on sizes and construction, ask for Bulletin 40-B-14.

ROOTS-CONNERSVILLE BLOWER CORPORATION

524 Richland Avenue, Connersville, Indiana



Three large R-C Meters in public utility plant. Unit in foreground has capacity of 1,000,000 cfh.

ROOTS-CONNERSVILLE



ONE OF THE DRESSER INDUSTRIES

When inquiring check CP 1870 on handy form, pgs. 2-3

FOR THE LABORATORY

Can accommodate 200 ml sample and read activity down to 5×10^{-10} curies/ml . . .

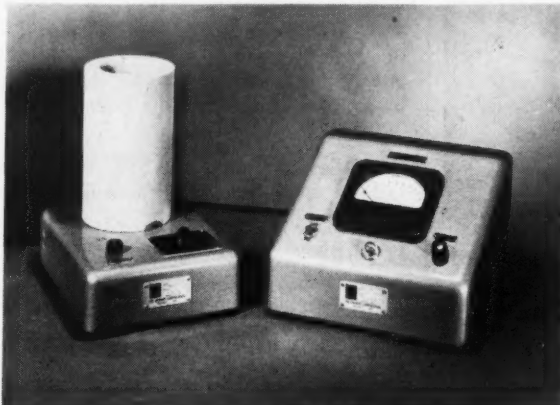
direct reading instrument has ranges of 1, 10, 100 and 1000 microcuries full scale

Uses: Particularly suited to applications wherein large liquid or solid samples must be utilized for accurate radiation measurements of gamma activity.

Features: Gives reading directly in microcuries — eliminating need for computations.

Description: Model AH-2 Gammometer is latest addition to manufacturer's line of radiation measuring instruments. Radioactive-sensitive element in Gammometer, as in all instruments of line, is Ohmart Cell which converts radioactive energy directly into electrical energy.

Sample well (seen in accompanying photo) measures $2\frac{3}{8}$ " in diameter x 5" in depth. As it will accommodate



Precision is better than $\pm 1\%$ of full scale

samples having volumes up to 200 ml, 1 microcurie range can be used to measure concentrations of activity down to 5×10^{-10} curies/ml.

Ranges of instrument are 1, 10, 100, and 1000 microcuries full scale; it is available calibrated in terms of radium (standard), cobalt-60, or iodine-131. Precisions is better than $\pm 1\%$ of full scale, and obtainable accuracy is $\pm 2\%$, 2%, 3% of full scale, respectively. For measurement of ambient field intensity the Gammometer is available calibrated in milliroentgen per hour.

(From the Ohmart Corp., Dept. CP, 2347 Ferguson Road, Cincinnati 38, Ohio . . . or for more information check CP 1871 on handy form, pages 2 and 3.)

Washes 125 small pipets at a time and needs no attention . . .

will take smaller quantities of large pipets — up to eighteen inches long

Uses: For washing pipets where large numbers of them accumulate.

Features: Washer needs no attention, operator is free to return to other duties while pipets are being cleaned.

Description: Pipet washer consists of a stainless steel basket, glass container, and a stand which incorporates an automatic syphon. Glass cylinder is open at the top and slightly tapered, becoming narrower at the bottom. Metal basket with pipets in it is placed in the cylinder

BARNSTEAD Demineralizers

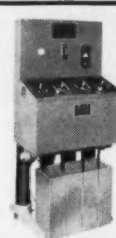
PROVIDE LOW-COST

PURE WATER

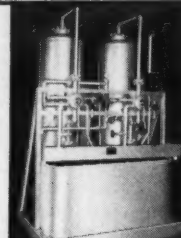
for

- Electroplating • Anodizing
- Photographic Solutions
- Salt-free Rinse Water
- Silvering

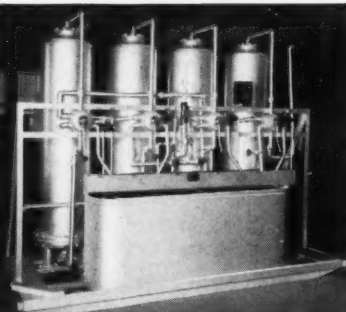
And Hundreds of Other Applications



Four-bed Model for hot-seal tank in anodizing. 30 gal/h.



Two-bed Model used in automotive plant. 1000 gal/h.



Four-bed Model provides pure, high-resistance water for electronic mfg. 1000 gal/h.

Selecting the best size and type demineralizer for you depends on nature of your raw water supply, daily demand, flow rate and purity needed. Send us sample of your water, and our engineers will make a free analysis and recommendations.

Write for free catalog

Barnstead

STILL & STERILIZER CO.

66 Lanesville Terrace, Boston 31, Mass.

When inquiring check CP 1872 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FLASH DRY SAMPLES TO DETERMINE *Moisture*



**FOR
ALL TYPES
OF SAMPLES**

**FIBROUS • GRANULAR
LIQUID • CRYSTALLINE**

Samples of your materials can be dried and tested for moisture content in a matter of a few minutes. You will save valuable processing time, reduce rejections, and improve product quality, when you install a DIETERT-DETROIT MOISTURE TELLER.

The moisture test is made in exact moisture percentage and test results will check exactly with the standard oven test. No corrections or calibrations are necessary.

Write TODAY TO DEPT. M-8 FOR DETAILS



When inquiring check CP 1873 on handy form, pgs. 2-3

FOR THE LABORATORY



Operator places basket of dirty pipets in the glass cylinder for flushing with water

and the washer connected to a water tap. With the water rate adjusted so that the cylinder is just about filled every four minutes, washer can be allowed to stay in operation all the time.

Dirty pipets can be accumulated in the washer. When basket is filled (it takes 125 seven-millimeter pipets), it is lifted out and dipped in cleaning solution until pipets are clean. After returning to the washer briefly for rinsing, pipets are ready for storage or re-use.

Washer takes up about one square foot in the sink. Made entirely of corrosion resistant material, it can be left set up all the time. Improved basket with heavy screen bottom and perforated walls does not allow pipets to protrude from basket and can be safely left in cleaning solution.

(Developed by Fisher Scientific Company, Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 1874 on handy form, pages 2 and 3.)

Accommodates glassware clamps in any position . . .

racks for multiple set-ups are thirty to sixty inches long and have uprights every five inches

Series of set-up racks for the laboratory provide for attaching clamps, mounting equipment, or support glassware in any position. These A. P. Supports have a base made of one-inch-square aluminum rod. Plan of the base is a wide H-shape with holes for 1/2-inch uprights every five inches.

Uprights are held in place with 1/4-inch Allen setscrews. Rods, uprights, setscrews, and Allen wrench are all furnished, ready for setting up.

Racks can be furnished in lengths of thirty, forty, and sixty inches. In all cases the side legs have four mounting holes.

(Available from Laboratory Industries, Inc., Dept. CP, 4710 W. North Ave., Chicago 39, Ill. . . or for more information check CP 1875 on handy form, pages 2 and 3.)



Collecting rainbow dust
is profitable with DUSTUBE

At the National Lead Company in Los Angeles, a major dust problem was created in processing the finely ground, dry pigments that give Dutch Boy paints their vivid rainbow hues and lasting protection.

The clouds of fine dust caused by charging this material into the mixing machines represented a loss of valuable material, made working conditions unpleasant, and would create a public nuisance.

The Dustube Dust Collector was selected because of its top efficiency in trapping the finest dust particles, and its low cost of operation and maintenance . . . it has lived up to every expectation.

Cleanliness in the mixing room now makes quality control easier. No dust is discharged to the outside air. The men charge the mixers in comfort without respirators. The recovered pigments can be reused. Challenge American's engineers to solve your problem. An inquiry involves no obligation.

SEND FOR THE NEW DUSTUBE CATALOG —

Contains 40 pages of practical information and engineering data on dust and fume control. Write for Catalog 72-B.

American
WHEELABRATOR & EQUIPMENT CORP.
478 S. Byrkit St. Mishawaka, Indiana
dustube
COLLECTORS

When inquiring check CP 1876 on handy form, pgs. 2-3

HEVI DUTY Multiple Unit HOT PLATES are essential in your Laboratory Set-up!



- Widely Used in Laboratories for:**
- HEATING AND EVAPORATING SOLUTIONS
 - ALCOHOL AND ETHER EXTRACTIONS
 - DRYING OF PRECIPITATES
 - DISTILLING, BOILING, ETC.

"MULTIPLE UNIT" Hot Plates are available in seven standard sizes, all equipped with three heat switches for temperatures to 750° F. Special sizes can be made to meet your particular requirements.

Because of the uniform distribution of the heating elements, there is an even temperature over the entire top surface. The heating units are readily replaceable by the user resulting in economy of maintenance. For complete details,

SEE YOUR LABORATORY SUPPLY DEALER
or write for Bulletin HD-835

HEVI DUTY ELECTRIC COMPANY

LABORATORY FURNACES **MULTIPLE UNIT** ELECTRIC EXCLUSIVELY
MILWAUKEE 1, WISCONSIN

When inquiring check CP 1877 on handy form. pgs. 2-3

FOR THE LABORATORY

**As easy to mount as
a resistor, rectifier
gives 200 ma . . .**

sealed in hard wax, unit is guaranteed for 1000-hour life

Uses: Rectification of AC where space is limited. Useful in making experimental laboratory equipment.

Features: Rectifier is entirely enclosed in a tube filled with wax which remains hard at 100°C — it is as easy to connect and mount in the circuit as a resistor.

Description: Plastisel Miniature Selenium Rectifiers are stubby tubes with two insulated wire leads. Conventional selenium rectifier plates are encased in a hard wax inside the tube.

When used to rectify 115 volt AC, unit can deliver 200 ma (at 130 volts). At lower loads it has an output voltage approaching this when used with a condenser input filter network.

In ratings from 250 to 500 ma DC, manufacturer recommends his open plate units. Enclosed units can also be furnished in other ratings — for higher voltage and doubling service.

Rectifiers are guaranteed for 1000 service hours or one year.

(Produced by Precision Rectifier Div., Electronic Devices Inc., Dept. CP, 429 Twelfth St., Brooklyn, N.Y. . . . or for more information check CP 1878 on handy form, pages 2 and 3.)

**Kit builds counter
in one evening . . .**

earphone and neon lamp response to ionizing radiation

Simple, practical Geiger counter is available in kit form. Reported to be about one evening's work, assembly is left to buyer. Many of the components are pre-assembled.

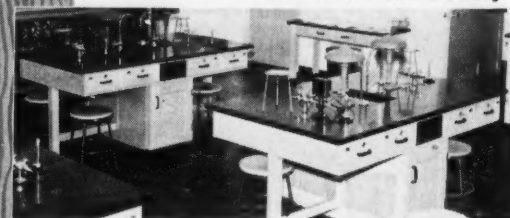
Power supply includes two flashlight batteries operating through a built-in vibrator. A single 1T4 tube is rectifier-connected in the circuit. Completed counter is easily carried (weighs 3 pounds) and is furnished with a leather handle and belt clip.

Geiger-Mueller tube is reported to be sensitive to gamma rays, medium-to-high energy beta rays, cosmic, and X-rays.

(Available from Allied Radio Corporation, Dept. CP, 833 W. Jackson Blvd., Chicago 7, Ill. . . . or for more information check CP 1879 on handy form, pages 2 and 3.)

Sturdy Oak

the **STEEL** of woods...
in all its natural beauty



For your laboratory—famous Kewaunee custom quality furniture in beautiful, long-lasting, natural finish oak. Oak—the steel of woods—for rugged service, long life. Oak—in natural finish—to brighten your laboratory, speed your work.

Specify oak—readily available—for durability and attractiveness. Specify Kewaunee—for finest custom quality, at extremely modest cost. Write today for a free copy of our catalog of Scientific Laboratory Equipment.

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Manufacturers of Wood and Metal Laboratory Equipment

When inquiring check CP 1880 on handy form, pgs. 2-3

Technicians Prefer Despatch LABORATORY OVENS



speedy
accurate
results

Model V-31: 37" x 25" x 50"
12 KW. Max. Temp. 500° F.

An exacting testing and production oven that provides very close heat uniformity. Built-in indicating temperature controls. Emphasis has been on heavy construction . . . even heat distribution . . . capacity loads at high speed . . . ability to "stand the gaff"—even under continuous 24-hour-a-day usage. Six sizes and types are available for the endless variety of heating, drying, baking and testing processes. Get Bulletin No. 107.

ovens
for all
purposes



DESPATCH

Established OVEN CO. in 1902

343 Despatch Building
MINNEAPOLIS 14 MINNESOTA

When inquiring check CP 1881 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FOR THE LABORATORY

Speeds drying of slides for microscope . . .

hot plate removes stains from slides without transfer to laboratory sink

Uses: Speeds drying of microscope slides during preparation of smear and after staining, and prevents stain from drying on slides during the limited steaming process.

Features: Removes stain without transfer to sink.

Description: Streamlined Micro Slide Hot Plate has



special aluminum-alloy heat-radiating fins which maintain heating plate surface at uniform temperature.

(Product of National Appliance Company, Dept. CP, Swan Island, Portland 18, Ore. . . or for more information check CP 1882 on handy form, pages 2 and 3.)

Transformer cuts power waste in variable AC voltage controls . . .

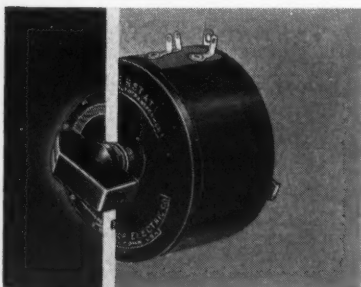
heat loss is minimized and ventilation unnecessary in 50, 100, 150 watt units

Uses: Low wattage applications — stirrers, illuminating lights for microscope, etc.

Features: Replaces heat dissipating and other resistance types of variable AC voltage control. Eliminates ventilating problem of resistance controls.

Description:

Single phase input is rated 120 volts, 60 cycles with an output of 0-120/132 volts, 1.25 amperes, 150/165 va. Model supplies continuously-adjustable voltage for any load up to its rated capacity.



Compact unit permits installation under 3-inch chassis

Designed for single hole mounting, it has projection on base for keying to panel. Compactness permits installation under three-inch chassis.

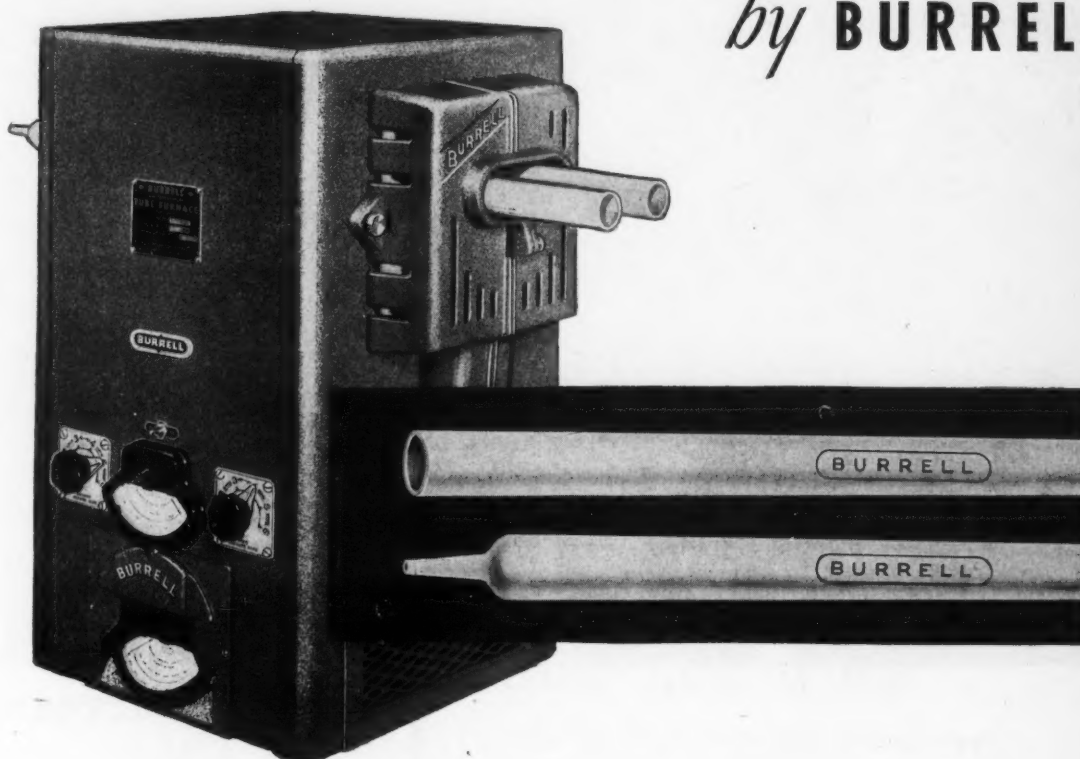
(Product of The Superior Electric Company, Dept. CP, Bristol, Conn. . . or for more information check CP 1883 on handy form, pages 2 and 3.)

APRIL, 1952

HIGH TEMPERATURE

Combustion Tubes

by BURRELL



Now in Stock FOR PROMPT DELIVERY

Use either ZIRCUM tubes containing a high concentration of zircon or McDANIEL tubes made of mullite. Both are especially fired for high temperature furnaces.

Straight and tapered-end styles in a variety of lengths and diameters are available for prompt delivery.

Write for New Bulletin No. 314

BURRELL

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2223 FIFTH AVENUE, PITTSBURGH 19, PENNSYLVANIA

MANUFACTURERS AND DISTRIBUTORS OF SCIENTIFIC APPARATUS AND LABORATORY CHEMICALS

- Guaranteed to withstand temperatures up to 2900° F.
- Dense, vitreous and gas-tight
- Straight and accurately sized
- Smooth inside, easily cleaned
- Free from devitrification
- Not distorted at high temperatures

When inquiring check CP 1884 on handy form, pgs. 2-3



\$
2,000,000

You're looking at \$2,000,000 worth of Armour-developed Adrenocorticotrophic Hormone miracle drug, popularly known as ACTHAR. The "bank" is a transparent **p-k** Twin Shell Dry Blender.

Blending is the last of twenty operations which Armour performs on the pea-sized anterior lobes of hog pituitaries. To insure exact day-to-day uniformity of product characteristics, a "bank" of about \$2,000,000 worth of ACTHAR is kept

in the Twin Shell Blender at all times. To this is added each day's production. The contents are thoroughly blended. Shipments are taken from the blended mix.

This special **p-k** Twin Shell Dry Blender was engineered to meet Armour's exacting specifications. It is dust-tight, gentle, non-contaminating, and the finished blend is absolutely uniform.

WORTH OF ACTHAR



p-k Twin Shell Dry Blenders of transparent plastic are available in 1, 2, and 3 cu. ft. capacity. Sizes range up to 250 cu. ft. capacity in steel and other metals.

For full particulars on both the laboratory and production models, write for Catalogs 401 and 402.

the Patterson-Kelley Co., Inc.
34 Lackawanna Ave. East Stroudsburg, Penna.

1108

101 Park Avenue, New York 17 • Railway Exchange Building, Chicago 4 • 1700 Walnut Street, Philadelphia 3 • 96-A Huntington Avenue, Boston 16 • and other principal cities

When inquiring check CP 1885 on handy form, pgs. 2-3

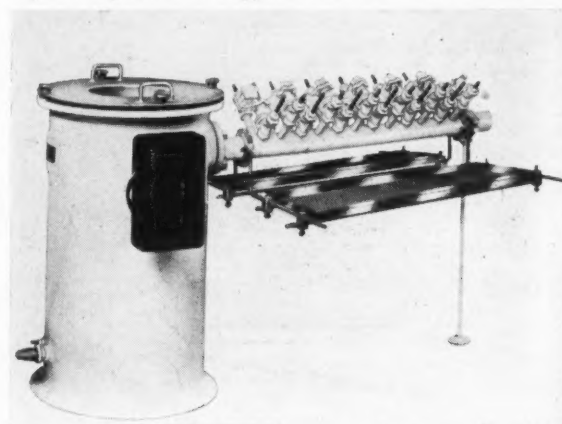
FOR THE LABORATORY

Batch, freeze drying unit employs dry ice and handles to 3600 ml . . .

24 valved ports with triple connectors permit up to 72 containers at once

Uses: Freeze drying of biological or other materials.
Features: Provides large batch capacity at low equipment cost.

Description: Stokes freeze drying unit 103-LPM operates on dry ice condensation. Total batch drying capacity is 3600 ml. If necessary, both baskets and dessiccant, with dry ice finger, can be supplied with the unit, thus allowing



Triple connectors on valved ports allow 72 containers to be handled at once

a choice between the lower cost dessiccant operation or the higher capacity that results from dry ice operation.

Manifold has 24 valved ports with triple connectors to permit handling up to 72 containers at once. Accessories include container trays with supports. Stokes high vacuum pump and McLeod Gage with interconnecting vacuum lines are standard equipment.

(Announced by F. J. Stokes Machine Co., Dept. CP, 5500 Tabor Rd., Philadelphia 20, Pa. . . or for more information check CP 1886 on handy form, pages 2 and 3.)

All modes of observation possible with this rugged 'scope . . .

bright, dark field, polarization, and phase contrast available for visual, photographic or screen work

Uses: For visual observation (either eyepiece or projected) and for photomicrographing specimens. This instrument can be used as a bright or dark field, polarization, or phase contrast microscope.

Features: Optical versatility of the instrument does not make it too delicate for long endurance. Stage of the instrument, for instance, will hold specimens up to 50 pounds in weight despite its precision.

Description: Vickers Projection Microscope is a vertical type metallograph. Built for extreme optical versatility, it can use the various modes of operation listed above, can be used for macro-examination and micro-hardness testing also.

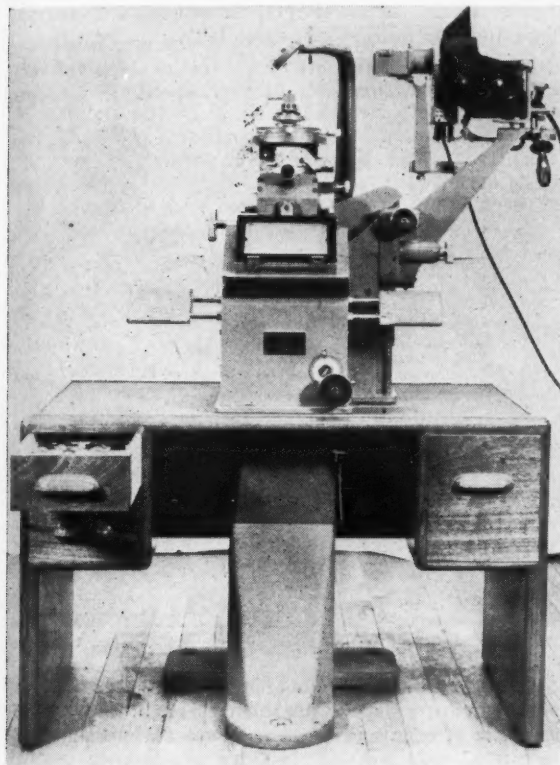
Vertical construction means that light from the specimen is bent only once on its way to the eyepiece or photographic plate. This is done by a precision mirror. Very heavy construction is used throughout the instrument to

CHEMICAL PROCESSING

FOR THE LABORATORY

reduce any tendency to vibrate. Cast construction is used for most of the components and especially for the support column of the unit. As a result, tapping or striking the instrument is reported to make no impression whatsoever on the image — even when it is done at high magnifications.

Alignment and adjustment of the instrument are very precise. Drum graduations of the fine adjustment are given in microns. Stage adjustment, reported to be the



Heavy cast construction eliminates vibration

most precise now being manufactured, has drum graduations reading to 0.01 mm per division. A graduated rotation adjustment is also supplied for use in polarized light studies.

Three light sources can be furnished for use with the metallograph: carbon arc, Pointolite (tungsten arc), and a mercury vapor lamp. All three are usable for photography.

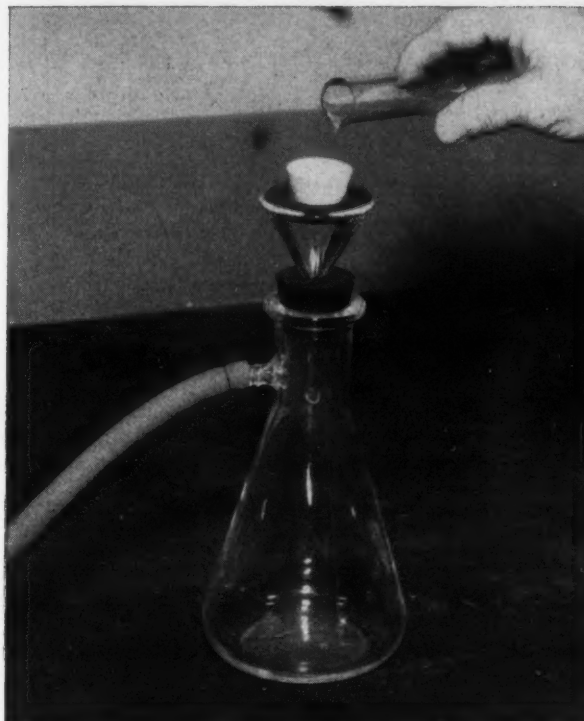
Macro examinations can be made in the range from 3 to 39X. Provision is made for photographs at low power, too. Instrument may be fitted with a sub-stage arm for transmitted light observations.

Micro-hardness tester attachment is arranged so that a diamond point is mounted in front of the objective. Fine adjustment of the instrument makes loads as low as 0.1 gram possible with this point.

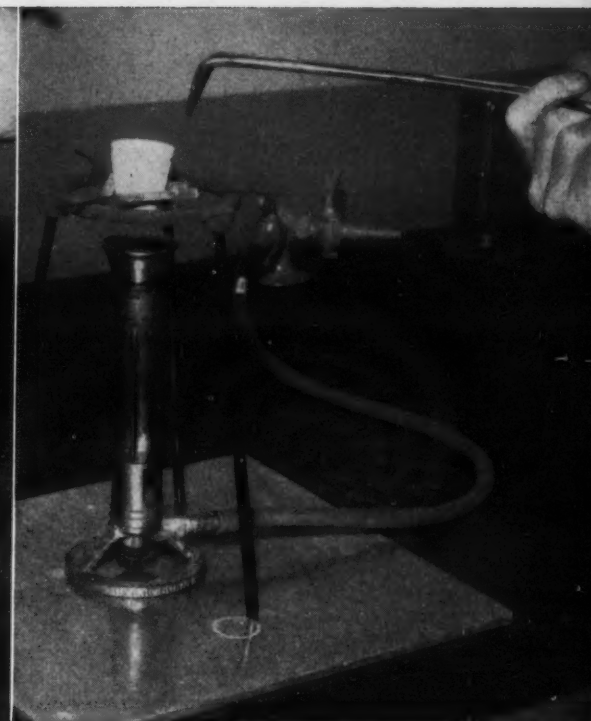
Though the metallograph is imported from Britain, complete stocks and repair facilities are maintained in Boston. Thus even special parts and extensive repair can be had in this country.

(This instrument is handled by The R. Y. Ferner Company, Inc., Dept. CP, 176 W. Adams St., Chicago 3, Ill. . . . or for more information check CP 1887 on handy form, pages 2 and 3.)

APRIL, 1952



SERVING A DOUBLE PURPOSE. Filter crucibles of Norton ALUNDUM are unique in that precipitates may be both collected and



ignited in them, without transfer to another receptacle. Photographs show how the same device is used for each of these two functions.

You save time and work with Alundum* laboratory ware

Made of purest fused alumina, expertly bonded and fired, Norton ALUNDUM laboratory ware offers technicians an exceptionally useful combination of properties. Foreexample:

CHEMICAL STABILITY—ALUNDUM ware is unattacked by any organic solvent, being affected only by hydrofluoric acid, concentrated phosphoric acid and strong, hot caustic solutions.

HIGH MELTING POINT—Only slightly below that of its fused alumina base — 2050°C.

AMPLE POROSITY — Between 35% and

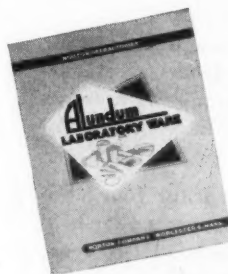
50%, in most cases, with practically no closed pores.

EASY TO CLEAN — Cleaning highly refractory ALUNDUM ware is a simple process of washing and igniting.

More and more leading laboratories are specifying ALUNDUM ware because of its wider range of usefulness in such processes as filtering extractions, melting, incinerating, etc. Why not investigate its many advantages for your own experimental and analytical work?



NORTON ALUNDUM LABORATORY WARE is made in many shapes for many uses. The group shown includes crucibles, ignition capsules, flange collars, filter cones, dishes, discs and extraction thimbles.



**GET
BULLETIN
793**

For complete data, including prices, contact your laboratory supply house, or write direct for Bulletin 793. Norton Company, 561 New Bond Street, Worcester 6, Mass.

*Reg. U. S. Pat. Off. and Foreign Countries

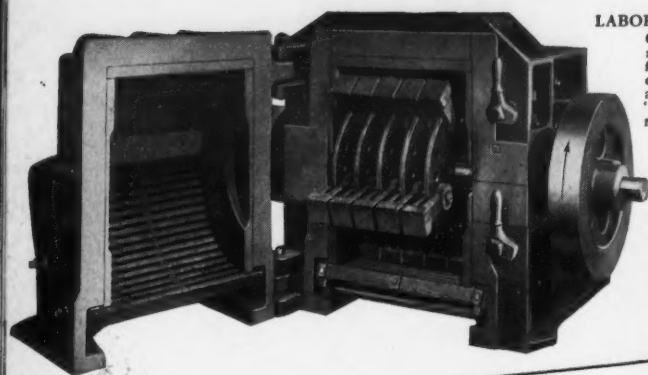
NORTON

Making better products to make other products better

**Special
LABORATORY WARE**

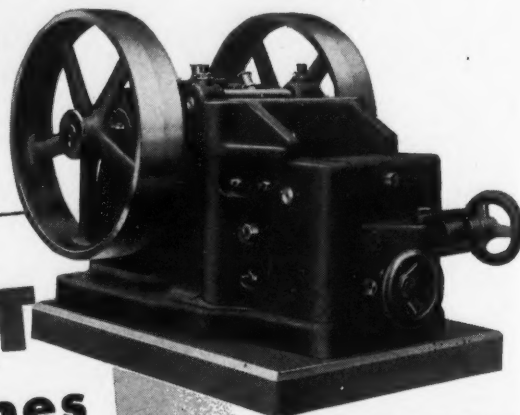
CARRIED IN STOCK BY MOST LABORATORY SUPPLY HOUSES

When inquiring check CP 1888 on handy form, pgs. 2-3



LABORATORY SWING-SLEDGE MILLS

Capable of reducing soft, moderately hard and tough or fibrous materials to any degree of fineness between 1 in. and 20 mesh. The patented "Open-Door" feature permits ready accessibility for cleaning.

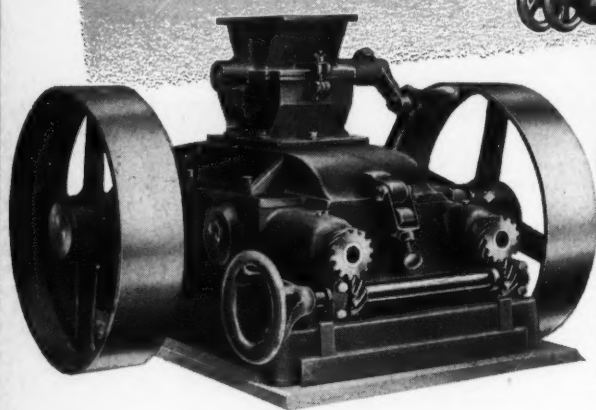


LABORATORY JAW CRUSHERS

Special Roll Jaw action simplifies close regulation of the product with capacities varying from 300 or 400 lbs. per hour at finest settings, to 1000 or 2000 lbs. when opened for coarser work. Each part of the crusher is accessible for quick and easy cleaning.

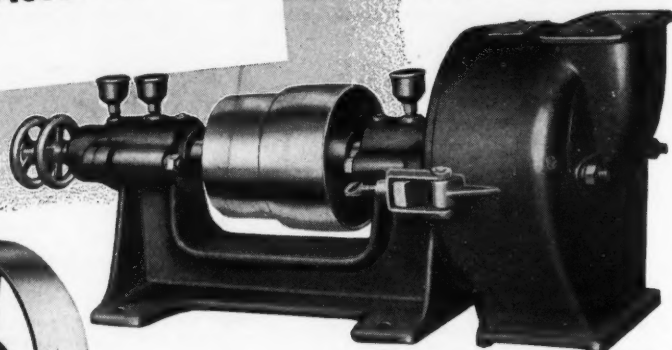
STURTEVANT Laboratory Machines

Assure Quality of Products
Fast - Economical - Accurate



LABORATORY CRUSHING ROLLS

First designed especially for laboratory sampling work, Sturtevant Crushing Rolls are used regularly in many plants where there are limited outputs. Range of output for the 8 x 5 size is from 1/2 in. to 20 mesh — and for the 12 x 12 size from 3/4 in. to 20 mesh.



LABORATORY SAMPLE GRINDER

Laboratory Sample Grinders are of the "Open-Door" disc type and are capable of very fine work, producing products as fine as 100 mesh (coarser if desired) when working on dry, friable, soft or moderately hard materials. Simply turn hand wheel to provide product regulation from 10 to 100 mesh.

of full size machines plus extra accuracy and wider range of adjustment. The "Open-Door" accessibility permits quick, thorough cleaning . . . prevents the possibility of previous batches from contaminating new samples.

Investigate Sturtevant equipment for your laboratory. It will cut your sampling costs . . . help maintain strict quality of products . . . increase sales. Write for complete details and catalog.

The only sure way to maintain strict quality of products is laboratory control . . . and that calls for accurate sampling.

Sturtevant Laboratory Equipment meets the exacting requirements of laboratory work. They are fast and accurate . . . provide true samples.

Rugged and dependable, Sturtevant equipment actually has all the features

STURTEVANT MILL COMPANY

When inquiring check CP 1889 on handy form, pgs. 2-3

FOR THE LABORATORY

Polishing head speed ranges from 112 to 1160 rpm — at full torque . . .

table accommodates two polishers for one-operation rough and fine polishing

Uses: Polishing metal samples for inspection under microscope.

Features: Polishing speed heads are maintained regardless of specimen pressure on head. Table seats large or small size metallographic polishers to permit rough and fine polishing at same table.

Description: Nine-inch head easily removed by locking-clutch mechanism. Desired speed of rotation



Table seats two units for one-operation polishing

(112 to 1160 rpm) is maintained by 1/4 hp motor. Bowl, splash-ring, cover, and adjustable ring for holding polish cloths are of corrosion-resistant metals. Metallographic table is 62 x 24".

(Product of Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 1890 on handy form, pages 2 and 3.)

Measures sheets or paint films up to 3/4 inch with accuracy of ± 5% ± 0.0001 inch . . .

magnetic instrument reads directly on rubber, textiles, paper, or plastic sheet material over iron

Uses: Film thickness gage can be used to check thickness of any sort of film or sheet (except iron or steel) which is applied to, or laid over an iron or steel surface. This includes paint, varnish, lacquer, rubber, textiles, leather, mastic coatings, plastics, paper, plating, zinc (on galvanized surface), or other sheets and films. Thicknesses from less than 2 mils to 3/4 inch are within the range of various models of the instrument.

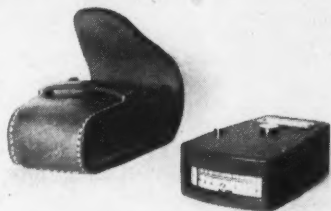
Features: Test is fast and non-destructive. Accuracy is about plus or minus 5% of film thickness plus or minus 0.0001 inch.

Description: Elcometer measures film thickness over any ferrous metal whether the surface is flat or curved. Concave surfaces down to 1-inch-radius can be measured as can convex surfaces down to 1/8-inch-radius. In addition to measuring films and coatings, the instrument

CHEMICAL PROCESSING

FOR THE LABORATORY

can measure paper, cloth, foil, or just about any non-ferrous sheet. For this service the tested material is placed over a small iron or steel sheet.



Meter is hand-size

Where readings are to be made in inaccessible places, a pointer-locking device in meter can be used. Check is made at point desired and reading is clamped until the instrument has been brought out and read. Since the meter is based on a magnetic principle, there are no wires or batteries to complicate its use in tight spots. Readings depend on the flux between two spherical tips which contact the surface. (These are not visible in accompanying photo — they are at the far end of the meter on the right.)

These nine scales can be furnished as standards. The 0 to 20 mil scale is most commonly used.

0 to 2 mils	0 to 10 mils	40 to 80 mils
0 to 3 mils	0 to 20 mils	0 to 1/4 inch
0 to 5 mils	15 to 40 mils	0 to 3/4 inch

In addition to these, manufacturer can make up special scales to order.

Construction of the hand-sized meter is two-piece aluminum die-casting. Zero adjust and locking buttons are stainless steel. Test tips are chrome plated for long wear. Meter and shims (for checking) come in a leather case.

(Available from Gardner Laboratory, Dept. CP, Bethesda 14, Md. . . or for more information check CP 1891 on handy form, pages 2 and 3.)

Converts volt-, watt-meter to multi-range instrument with high impedance . . .

amplifier takes signals from 15 to 600v, drawing 150 microamp max — delivers 150v in phase at 0.05 amp

Whenever voltage or power measurements are made at power frequency, there is a question of the loading effect of the voltage measuring instrument on the circuit. In order to avoid loading the circuit, the measuring instrument must have a high input impedance. Meter Matcher 105 is an amplifier which may be used with standard AC instruments to give them, effectively, high input impedance and an extended range.



5 to 20,000 cps with constant gain

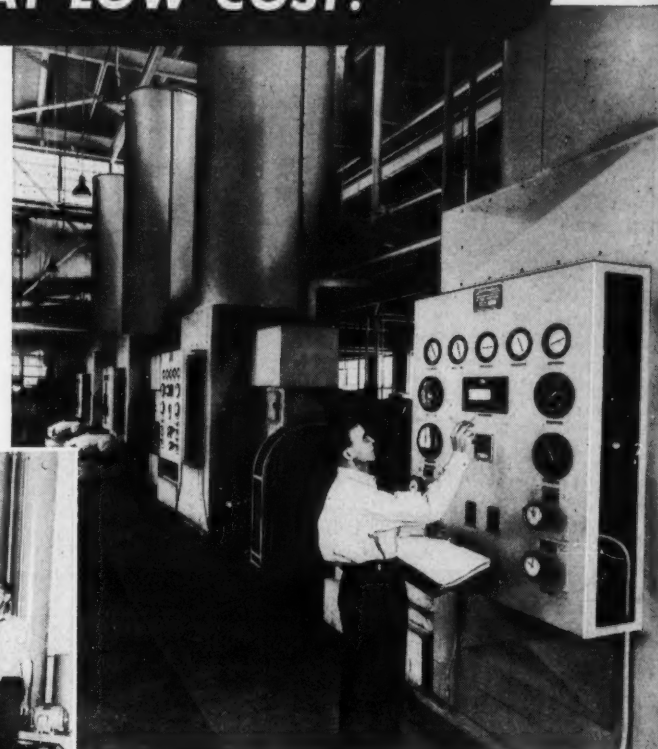
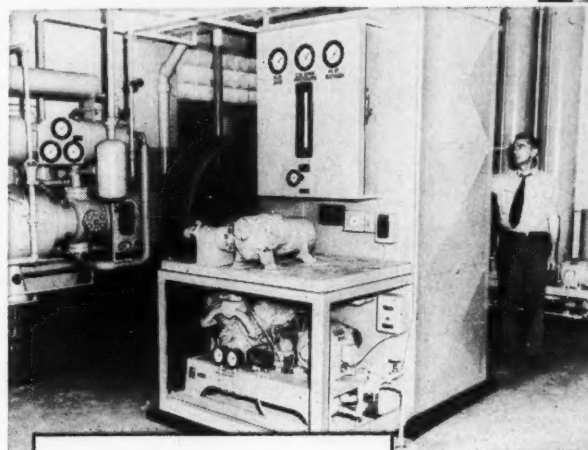
Amplifier has a voltage-divider input so that 15, 75, 150, 300, or 600 volt signals can be made to produce the full 150 volt output. Maximum current drawn by the amplifier is only 150 microamperes; output of 0.05 to 0.07 ampere is available. Phase shift caused by the meter current is negligible — only 0.006 degree for a 2000 ohm meter at 60 cycles per second. Error introduced by the amplifier is, at most, 0.15%.

(Continued on next page)

MAKE YOUR OWN OXYGEN and NITROGEN FROM AIR -- AT LOW COST!

Could You Use Large Quantities of Low-Cost Oxygen or Nitrogen?

If so, it will pay you to install an Air Products Generator and make your own. Numerous models are available with oxygen capacities from 200 cubic feet to 500,000 cubic feet per hour. All of them have been proven by the acid test of operation in industry.



ABOVE: Air Products Oxygen Generators in customer's plant. Capacity, 25,000,000 cubic feet per month.

LEFT: R-Series Air Products Oxygen Generator in customer's plant. Capacity, 500,000 cubic feet per month.

A Partial List of Users

American Chain & Cable Co., Inc.
Bethlehem Steel Co.
Thomas A. Edison, Inc.
Ford Motor Company
Granite City Steel Co.
Grede Foundries, Inc.
Hartford Hospital
Libby-Owens-Ford Glass Co.
Pettibone Mulliken Corp.
Pittsburgh Steel Foundry Corp.
Ross-Meehan Foundries
U. S. Armed Services

Noted for economy, dependability, and ease of operation, Air Products Generators employ the most advanced cycles, according to individual requirements.

Air Products, Incorporated, is a pioneer in the design and manufacture of oxygen-nitrogen generators and related equipment. A thoroughly experienced organization of over 500 people is occupied exclusively in this work. The overall background of Air Products in this field is unmatched by any other concern.

Air Products Generators have been in constant use for many years in the plants of nationally known companies. Some of these are listed at left. Air Products has effected substantial savings for all customers by eliminating the heavy costs, uncertainties and inconveniences of relying on outside sources.

We offer you experience based on the design and construction of over 400 successful oxygen-nitrogen generators.

Specialists in Equipment for All Low-Temperature Processes

Air Products Generators
OXYGEN — NITROGEN — ARGON

AIR PRODUCTS, Inc., Dept. K, Box 538, Allentown, Pa.

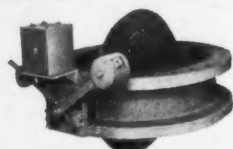
When inquiring check CP 1892 on handy form, pgs. 2-3



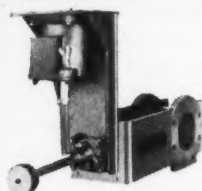
• EXCERPTS FROM THE R-S BOOK OF EXPERIENCE •



WATER SERVICE—No. 825—36-inch 125-pound cast iron valve equipped with 18—8 shafts, bronze bushings and rubber seat for 85-pound drip tight shut-off.



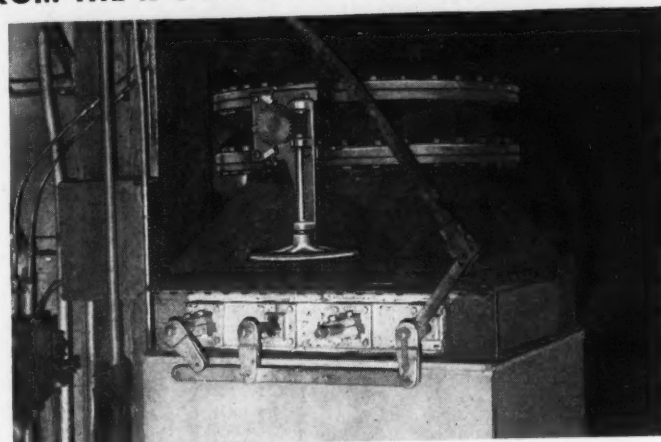
EMERGENCY OIL SERVICE—No. 628—solenoid trip valve. Should the solenoid function, the latch is tripped which causes the counterweight to open or close the valve by gravity. Available in any metal or alloy and in various sizes for emergency shut-off or vent for air, gas, steam, oil, and water.



700° F. EXHAUST GAS SERVICE—No. 826—6-inch 125-pound R-S "H" metal valve used on small turbine generator. Equipped with 18—8 shafts, hastelloy bushings, finned lubricated stuffing box and solenoid trip mechanism.



STEAM SERVICE—No. 677—1500-pound welding and steel valve for superheated steam—A. S. M. E. Standards.



SEMI-SOLID SERVICE including abrasive and corrosive materials.



R-S VALVES Control and Shut Off Practically Any Material

The beveled vane seats firmly at a $12\frac{1}{2}^\circ$ angle and is closed from a fully open position through $77\frac{1}{2}^\circ$ of arc by either manual or automatic operation. A metal-to-metal seat gives satisfactory commercial shut-off. When required, Monel or stainless steel can be welded to the vane periphery and a babbitted seat used in the valve body. Drip tight or bubble tight closure can be obtained with a rubber seat.

Power controlled prime movers delivering the necessary foot pounds of torque open or close these self-cleaning valves at any desired speed from one second to eight minutes according to requirements. Pressures range from 2 to 2500 psig and temperatures from minus 300° F. to plus 2000° F.

Such simplicity of design, adaptability and operating ease are the reasons why R-S Valves can be installed to control and shut off the volume and pressure of any material that flows or is forced through a pipe.

Obtain full details from your R-S representative.

R-S PRODUCTS CORPORATION
4600 Germantown Avenue, Philadelphia 44, Pa.

An S. Morgan Smith Company Subsidiary

DISTRICT OFFICES IN PRINCIPAL CITIES

FOR THE LABORATORY

(Continued from preceding page)

Large amount of negative feedback in the amplifier has two principal effects: excellent gain stability and fidelity, and an effective output impedance of one ohm in series with 15,000 microfarads. Maximum output signal is obtainable from 20 to 2000 cps, while gain is constant from 5 to 20,000 cps. (Amplifier gives no response to DC). Controls allow for adjusting gain, plate current, other variables. Power supply is standard 115v 50/60 cps drawing about 200w.

(Developed by Keithley Instruments, Dept. CP, 3868 Carnegie Ave., Cleveland 15, Ohio . . . or for more information check CP 1894 on handy form, pages 2 and 3.)

Offers polarized, phase, and bright field illumination . . .

desk model metallograph permits convenient visual and photographic control

Uses: Microscopic study of metals under varied illumination. Potential application in laboratories dealing with anisotropic metals, identification of non-metallic inclusions where polarized light is required, examining unetched specimens, or determining differences of level of areas within a specimen.

Features: Offers both phase contrast and polarized light. Disturbing elliptical polarization is eliminated by specially coated reflector used in vertical illuminator. Has conventional lighting too.

Description: Automatic, built-in illuminator is supplemented by four built-in photographic eyepieces to operate in quick-change slides. A separate, built-in illuminator is used for visual examination. No charts or tables are needed to determine optical settings. Full



Controls are easily accessible at desk-type metallograph

and quarter wave compensators are standard, making possible striking color differences to accentuate slight differences in contrast. Phase (diffraction) plate is built into same slide as the analyzer. Vertical illuminator focusing lens permits sharp focus of annular diaphragm on phase plate.

Research-type centerable rotating stage has verniers graduated in degrees, and built-in coordinate motions, 20 mm in each direction.

(Product of American Optical Company, Dept. CP, Southbridge, Mass. . . or for more information check CP 1895 on handy form, pages 2 and 3.)

CHEMICAL PROCESSING

When inquiring check CP 1893 on handy form, pgs. 2-3

FOR THE LABORATORY

Minus 80°F and lower attained with these industrial units . . .

two units offer controlled low temperature in 1.5 and 6.5 cu ft

Uses: Storage of temperature-sensitive materials, conditioning of samples, and low temperature tests are all within scope of this equipment.

Features: Two units have 1.5 and 6.5 cubic feet of storage space, can reach minimum temperatures of -95 and -85°F, respectively.

Description: Sub-zero Chests are of welded steel construction and are designed for industrial or laboratory use. Refrigeration system is two-stage and has a total of one horsepower. Fiberglass bats provide insulation.

Outer lid of the cabinet is insulated and can be opened to a 75° angle. A second lid covers the internal cold chamber itself. Chamber of the smaller unit measures 23 x 9 x 12½" deep; larger is 47 x 15 x 16" deep.

Units are designed to maintain a controlled temperature. Model SZH15, the 1.5 cubic foot unit, has a controlled temperature range down to -90°F and can reach -95°F by running continuously. Model SZH65 is controlled to -80°F. Freon 12 or Freon 22 are the recommended refrigerants.

(Built by Revco, Inc., Dept. CP, Deerfield, Mich. . . . or for more information check CP 1896 on handy form, pages 2 and 3.)

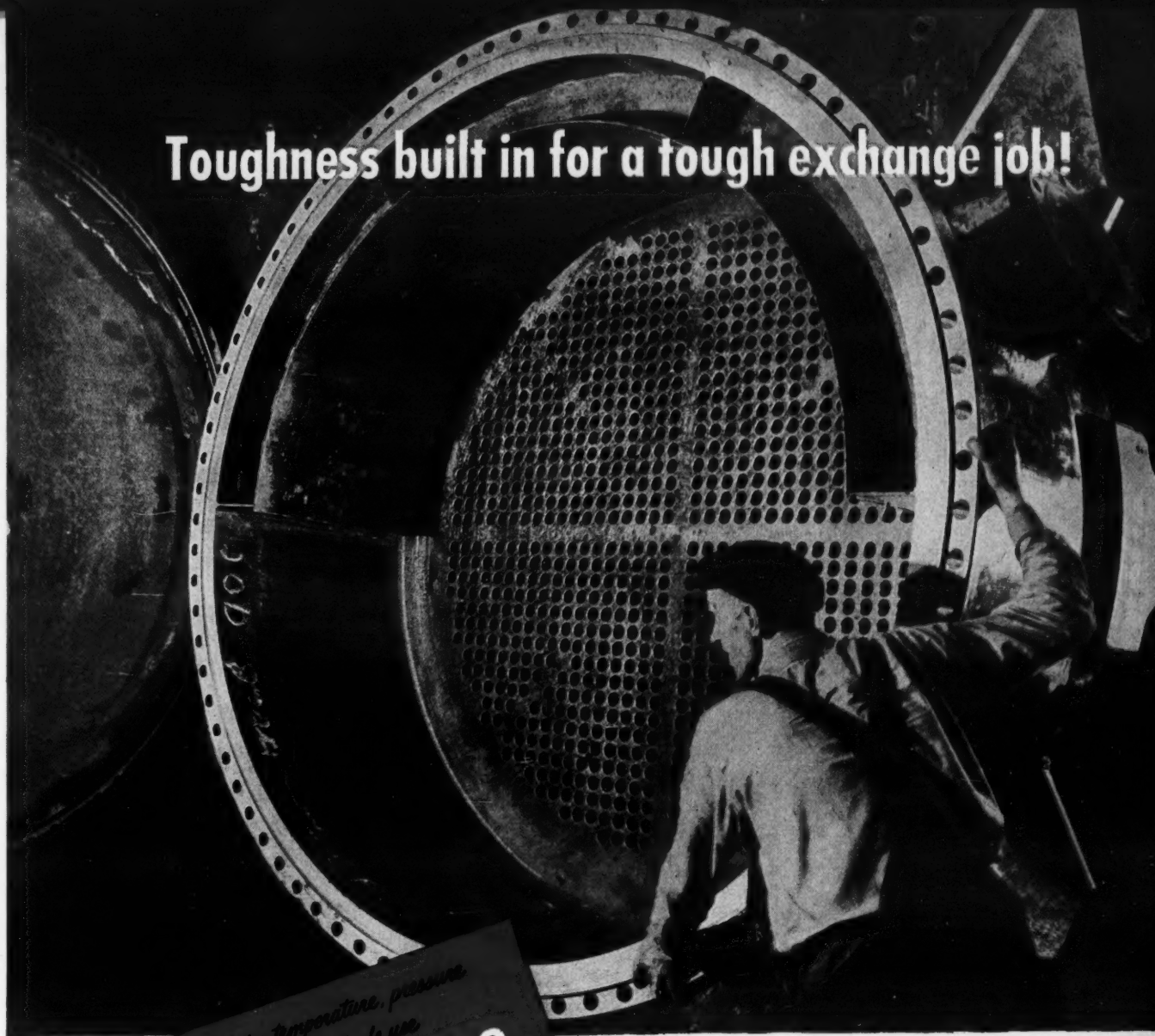
Outlines method in fuel analysis

Laboratory guide for evaluation of gaseous, liquid, and solid fuel is presented in 216-page volume. Briefly reviews theoretical basis for testing methods and then presents simplest standard procedure for quantitative analysis of all forms of fuel. Illustrates procedure for assembling and using test apparatus. Tables of applicable data and necessary equations are included.

To obtain "Methods of Analysis of Fuels and Oils," remit \$4.00 direct to Chemical Publishing Co., Inc., Dept. CP, 212 Fifth Ave., New York 10, N. Y. When inquiring specify CP 1897 on handy form, pages 2 and 3.

For more information on product at right, specify CP 1898 . . . see information request blank between pages 2-3.

Toughness built in for a tough exchange job!



To master temperature, pressure and chemicals use
M. W. KELLOGG
process equipment

This 8 foot diameter tube sheet is for a recycle-catalyst cooler on a giant cat-cracker. Tons of erosive powder will pour through the cooler's tubes in minutes as it controls regenerated catalyst temperature. Kellogg's exclusive fabricating techniques really pay off in equipment for such tough processing jobs.

Pressure Vessels
Vacuum Vessels
Fractionating Columns
Drums and Shells
Heat Exchangers
Process Piping
Hi-pressure—Hi-temp
Power Piping
Bends and Headers
Forged and
Welded Fittings
Radial Brick Chimneys



Continuing Basic Study of heat exchange by Kellogg development groups over 20 years has produced unduplicated design data.



Shop Layout Craftsmen have had experience on all types of heat exchangers, from marine condensers to jet engine combustion chambers.



Rigid Quality Control is maintained by inspectors reporting directly to Shop Management rather than to Production executives.



Extensive Shop Facilities, from plate forming to stud threading, permit complete fabrication of any type heat exchanger



Special Shop Techniques—the component parts of each exchanger are fabricated as a production unit, building in the advantages of "tailor-made" fit.

FOR OPERATORS IN WESTERN CANADA

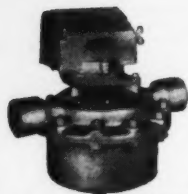
The Canadian Kellogg Company Ltd. has established complete shop facilities for the fabrication of all types of piping at EDMONTON, Alberta. Inquire directly or through any Kellogg or Canadian Kellogg office.

The M. W. Kellogg Company (A Subsidiary of Pullman Incorporated) New York, Jersey City, Los Angeles, Tulsa, Houston, Toronto, London, Paris

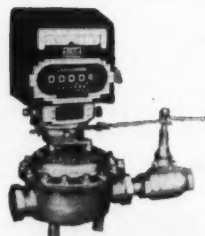
Rockwell Industrial Meters



Get fast, accurate
FORMULA and COST CONTROL



Model ER-13 1" connections, with small reset register.



Model ER-15 1 1/2" connections, with printing register and quantity control valve.

You can batch mix, blend or process most any liquid through Rockwell meters. You can make every formula letter perfect. And on repetitive operations you can do it automatically with the addition of a Rockwell Quantity Control valve to the meter hook-up.

Cost control is another plus value resulting from the use of these meters. Losses quickly show up. If they cannot be corrected, the meter records can be used for basic accounting to permit tax reductions and other processing cost calculations.

Get full facts now. Use the coupon or write for bulletin OG-400.

You Can RELY ON ROCKWELL

...to accurately measure most any liquid that can be piped—oils, chemicals, paints, liquors, solutions, etc. Complete list sent on request.

SEND THIS COUPON TODAY

ROCKWELL MANUFACTURING CO., PITTSBURGH 8, PA.

A-5210

Gentlemen:

I am interested in measuring _____

(Name of Liquid)

Pipe Size _____ Working Pressure _____ psi Temperature _____ °F. max.

Max. Flow Rate _____ gpm Min. Flow Rate _____ gpm

YOUR NAME _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

When inquiring check CP 1899 on handy form, pgs. 2-3

FOR THE LABORATORY

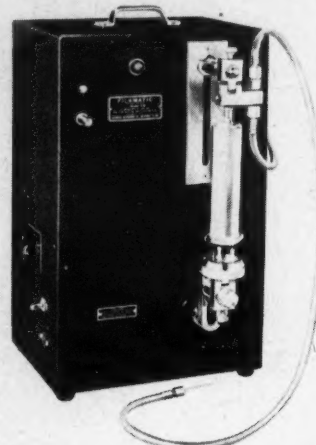
**Automatically pipets
10 to 90 "shots"
per minute . . .**

covers entire range from 0.025 to 50 ml without attachments

Uses: Serves as automatic pipet and vial filling machine — dispensing chemical and serological reagents.

Features: Delivery to micro accuracy is reported.

Description: Filamatic is usable in the range from 0.025 to 50 ml without expensive attachments and does not have to be recalibrated



Automatic pipetter with micro accuracy

each time it is used. Speed can be instantly varied from 10 to 90 deliveries per minute.

Unit has a simplified, two-knob control for easy operation. All liquid contacting parts are made of stainless steel. All rotating and moving parts have self-lubricating bearings.

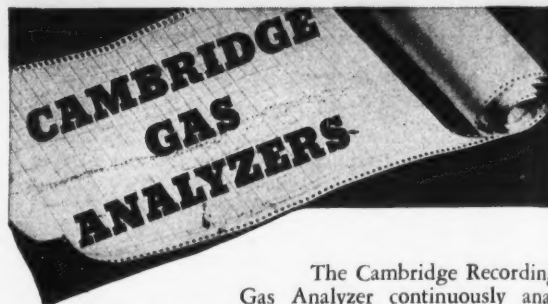
(Available from Scientific Glass Apparatus Co., Inc., Dept. CP, 100 Lakewood Terrace, Bloomfield, N. J. . . . or for more information check CP 1900 on handy form, pages 2 and 3.)

**Records dew point
of running sample
of air, gas . . .**

servo instrument produces reading accurate to 0.1°C

Uses: Produces an accurate running record of the dew point of any condensible in air or gas under test.

Features: High response speed (50°C per second) and good damping of the servo circuit allow the instrument to follow dew point changes within 0.1°C.



The Cambridge Recording Gas Analyzer continuously analyzes and records as many as six constituents of a gas. Eliminates intermittent, slow and expensive manual gas analysis. Accurate . . . Sensitive . . . Simple. No moving parts; utilizes thermal conductivity principle.

Makes possible substantial savings in the operation of kilns, production of inert gases, and in metallurgical, petroleum, and other chemical processes. Single- and Multi-point instruments are available for a wide variety of applications.

Send for literature mentioning application

CAMBRIDGE

INSTRUMENT COMPANY, INC.

3706 Grand Central Terminal, New York 17

Pioneer Manufacturers of

PRECISION INSTRUMENTS

When inquiring check CP 1901 on handy form, pgs. 2-3



**There's No
Guesswork
When You
Use**

SYNTRON

"Vibrating"

**TEST SIEVE
SHAKERS**

**—they'll give you
fast, efficient sizing
of test samples.**

- 110-60 AC Operation.
- Use standard 8" Screen Scale Testing Sieves.
- Controlled electromagnetic vibration —no motors, pulleys, etc.

- A reset timer for accurately timed test periods.

Write for Free Catalog Folder

SYNTRON CO.

110 Lexington Avenue

Homer City, Pa.

When inquiring check CP 1902 on handy form, pgs. 2-3

CHEMICAL PROCESSING

FOR THE LABORATORY

Description: Electronic Dew Point Hygrometer consists of a thin (0.002-inch) polished metal mirror, photocell, and electronic heat-control circuit.

When hygrometer is connected to a tube bringing a continuous gas sample to the mirror chamber, dry ice-alcohol mixture in the trap tends to condense out water (or other dew-forming component). Dew, forming on the mirror, triggers the electronic heater by means of the photocell.

Heat is applied to the mirror, and to a thermocouple mounted adjacent to it, until photocell beam is just restored.

Leads from the thermocouple are connected to a separate recorder where the record is made.

Manufacturer points out that these instruments can be used in trains for running a complete analysis of con-



Mirror in photocell circuit is 0.002 inch thick

densibles in the gas sample. Where required, liquid air can be substituted for other coolants in order to extend the range.

In such cases the damping of the instrument is good enough to stop oscillation caused by a puff of water vapor in one or two cycles. Damping is independent of recorder.

Steel cabinet housing is about 14 x 18 x 16 inches high. All controls are front panel mounted. Power required: 175 to 200w at 115v, 60 cps.

(Developed for the University of California Meteorological Department by Burton Manufacturing Co., Dept. CP, 11201 W. Pico Blvd., Los Angeles 64, Calif. . . . or for more information check CP 1903 on handy form, pages 2 and 3.)

For more information on product at right, specify CP 1904 . . . see information request blank between pages 2-3.

Colorful asphalt floor tile mix uniformly produced in BAKER PERKINS mixers



B-P Mixers are doing a splendid job in all sorts of processing operations, and this installation of six size 15JSE BAKER PERKINS Mixers at a large asphalt floor tile plant is an excellent example. These six mixers can thoroughly blend the ingredients for asphalt floor tile at the rate of 18,000 lbs. per hour on a continuous production schedule. Like other BAKER PERKINS equipment, the cost of operating and maintenance, including labor, material handling, power, and depreciation, are down where they should be. BAKER PERKINS equipment can help cut costs, increase production, and improve the quality of your product, too. Consult a B-P sales engineer or write us today.

BAKER PERKINS INC.
CHEMICAL MACHINERY DIVISION
SAGINAW, MICHIGAN

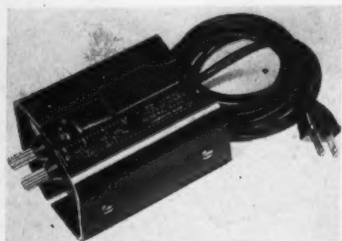
FOR THE LABORATORY

Supplies from 0 to 16v for AC lab gadgets or sundry uses . . .

variable transformer has isolated secondary for safety

Uses: Has been used for intensity control of lamp for microscope illumination, low-voltage soldering irons, other controlled voltage AC work where up to 16 volts are needed.

Features: Transformer combines better points of the adjustable-tap autotransformer and an ordinary trans-



Delivers 5 amperes

former. Secondary, though tapped, is isolated and may be used safely on grounded or ungrounded circuits.

Description: Type 71-A Variac Transformer is designed for conversion of 115v 60 cps power to 60 cps AC at any voltage from 0 to 16v. Secondary will safely handle 5 amp with less than a 50°C internal temperature rise. Output regulation is good too: less than three volt fall-off at full load.

Basic unit is composed of two layer-wound primary coils on opposite legs of a conventional stack of L-type laminations. Single layer secondary coils are wound over each of the primaries. (Unit is tested at 1250v coil-to-coil.) Secondaries are tapped by two brushes on a single aluminum radiator.

Physically, unit is made of two aluminum channels. Voltage control slider rides in the slot between the channels. It may be bolted to a wall, table top, or mounted as a component in other equipment. Unit is 3 1/4 x 3 3/8 x 5 1/2" long.

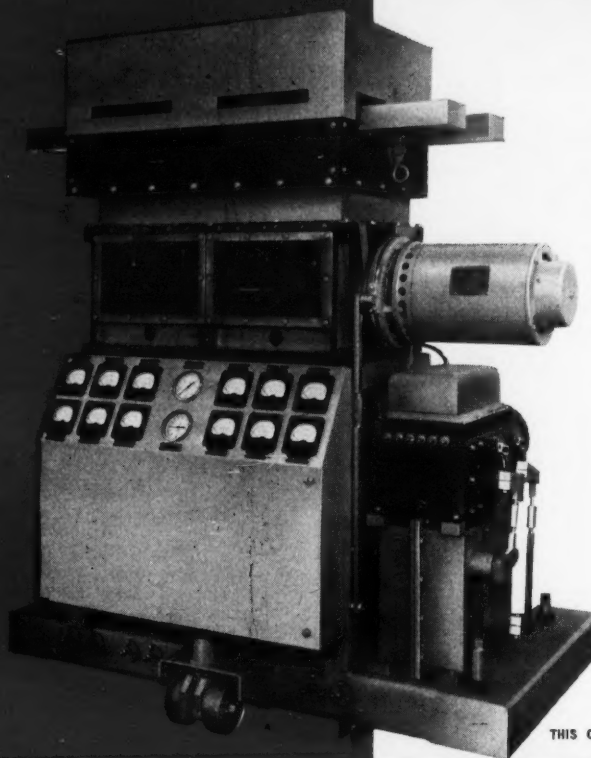
(Variacs are products of General Radio Company, Dept. CP, Cambridge, Mass. . . . or for more information check CP 1905 on handy form, pages 2 and 3.)

Gives sensitive relay instrument review

Sixteen-page catalog presents manufacturer's six sensitive relays. Illustrated and diagrammed models are supplemented with classification chart

UTILITY ENGINEERS! CONSULTING ENGINEERS! INDUSTRIAL D-C USERS!

HERE'S A SOURCE OF



For the last five years, I-T-E has been supplying U. S. industry with a highly efficient Mechanical Rectifier for producing d-c power. Over-all efficiencies—from a-c source to d-c bus—of 94 to 96% within a 50 to 400 volt range are routine with the I-T-E Mechanical Rectifier.

First U. S. installation of the I-T-E Mechanical Rectifier was made at the Buffalo Electro-Chemical Corporation. That company now has seven Mechanical Rectifiers. The success of the installation convinced other heavy d-c users that I-T-E Mechanical Rectifiers are an ideal source of low cost d-c power. This means I-T-E Mechanical Rectifiers should be given ever increasing consideration when planning new rectification installations.

As indicated in the series of diagrams below, basic theory of the I-T-E Mechanical Rectifier is simple. For a complete description of the Mechanical Rectifier, its operation, dimensions, and typical operating curves, write for Bulletin 5106. The I-T-E Circuit Breaker Co., 19th and Hamilton Sts., Phila. 30, Pa.

THIS CONTACT MECHANISM, 57 INCHES IN HEIGHT, DELIVERS 10,000 D-C AMPERES AT 250 VOLTS

I-T-E MECHANICAL RECTIFIERS OFFER THESE ADVANTAGES

- **HIGH EFFICIENCY**
Superior in 50-400 d-c volt range
- **SMALL SPACE REQUIREMENT**
Compact design, neat appearance
- **LOW BUILDING INVESTMENT**
No need for special construction
- **LOW INSTALLATION COST**
Install rectifier, connect, operate
- **AVAILABILITY FOR SERVICE**
No warming-up or speed-up period
- **LOW MAINTENANCE COST**
Minimum main contact replacement
- **RUGGED TRANSFORMERS**
Conservative, modern design
- **SIMPLE VOLTAGE CONTROL**
Voltage or current controlled automatically between $\pm 1\%$

Take a sine wave 

Modify it like this 

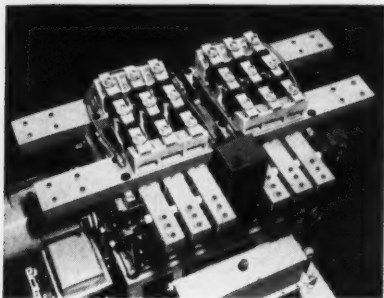
Make contact here  Break contact here

Do this 1,296,000 times an hour and get this 

With a conversion efficiency of 96% or higher!

LOW-COST D-C POWER!

HERE ARE THE HIGHLIGHTS OF I-T-E MECHANICAL RECTIFIER EQUIPMENT

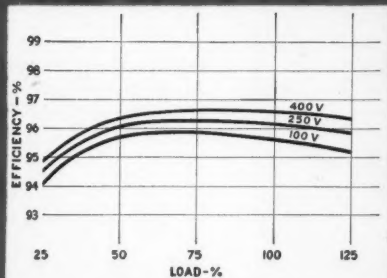


EASY CONTACT ADJUSTMENT

Contact replacement, when necessary, is quickly done because each contact is a unit assembly installed by tightening two bolts. Contact adjustment can be made while the mechanism is operating and under load.

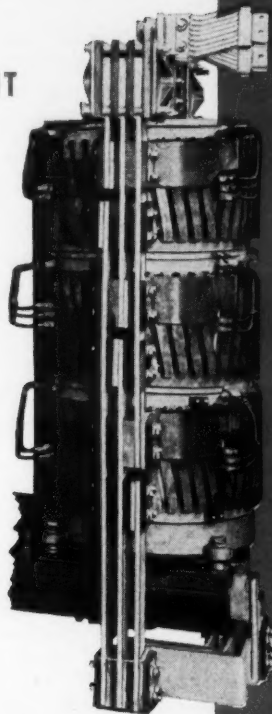
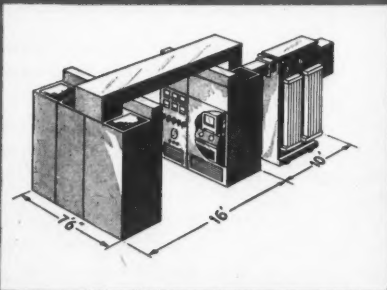
HIGHEST CONVERSION EFFICIENCY

Mechanical rectifiers operate efficiently over a wide load range. These curves are characteristic of 400, 250 and 100-volt rectifiers, showing efficiency of 94-95 percent at 25% load, from which point values rise steeply to 95-97%.



SAVES SPACE

Typical 1500 KW mechanical rectifier installation showing all elements of rectifier unit, including operating aisle, in approximately 120 sq. ft. of floor area. Power transformer length, indicated as 10 feet, is approximate, representing usual conditions. Compartment with door cut away encloses contact mechanism.



COMMUTATING REACTORS

Commutating reactors, which put the "step" in the a-c wave, provide sparkless contact operation. They are the basis of the mechanical conversion method, employing a special core material, known as Permeron, developed for the purpose. Usual practice is to incorporate the commutating reactors in the transformer tank. Transformer location may be either indoors or outdoors.



MECHANICAL RECTIFIERS

I-T-E CIRCUIT BREAKER COMPANY
19TH AND HAMILTON STS., PHILA. 30, PA.

R&IE EQUIPMENT DIVISION, GREENSBURG, PA.

CANADIAN MFG. AND SALES:
EASTERN POWER DEVICES, LTD., TORONTO

EXPORT SALES:
PHILIPS EXPORT CORP., NEW YORK, N. Y.

FOR THE LABORATORY

for selecting relays. Features, application, and adjustment table accompanies each model.

Cat 52-3 is issued by Sigma Instruments, Inc., Dept. CP, 170 Pearl St., South Braintree, Boston 85, Mass. When inquiring specify CP 1906 on handy form, pages 2 and 3.

Combination unit runs both carbons and sulfurs . . .

steels, iron, oils check closely in a matter of minutes

Uses: Dual induction furnace can be used with absorption trains for both carbon and sulfur in irons and steels. It can be used for gravimetric carbon in metals and also for sulfur in oils.

Features: Combustion for sulfur takes only two to four minutes, and even less for carbon. Results shown in manufacturer's literature agree with Bureau of Standards results to the second decimal in all of the cases cited.

Description: Series of electronic induction furnaces provide a great advantage in speed over conventional furnaces. Heating power is supplied only to the region of the sample.

For instance, after furnace has warmed up for 45 seconds (drawing 0.15 kva) it can be used to bring an iron sample to combustion temperature in less than a minute. During this period it draws about 1.4 kva. Sample having arrived at the proper temperature, much of the heat is supplied directly from the combustion (oxygen is forced into sample).

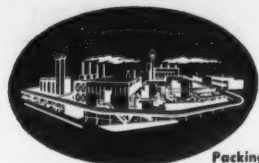
Sulfur unit (Leco IH-10S) uses a large induction coil and a porous cover over the crucible. Cover prevents gross oxidation during a 45 second pre-heat period, bringing temperature to 3000°F.

No chromic oxide or other oxygen source is needed.

Combination unit incorporates the sulfur unit and the carbon unit. It is designated the Leco IH-15. Where desired, it can be furnished as a dual sulfur unit.

(Laboratory Equipment Corporation, Dept. CP, St. Joseph, Mich., is the maker . . . or for more information check CP 1907 on handy form, pages 2 and 3.)

For more information on product at left, specify CP 1908 . . . see information request blank between pages 2-3.



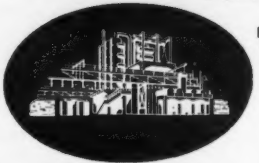
Meat-Packing Plants



Chemical Plants



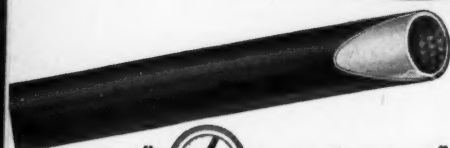
Sewage Disposal Plants



Process Plants

FOR YOUR TOUGHEST PROBLEMS...

The raceway with 9 lives...



"Dekorun-Coated"

ELECTRUNITE E. M. T.

Wherever corrosive moisture and chemicals are cutting your raceways to pieces, install ELECTRUNITE "Dekorun-Coated" E.M.T. . . . made specially to give years of additional life in the most severe service.

An extruded polyethylene coating over galvanized ELECTRUNITE E.M.T. provides an armor that stands up against almost anything from salt spray to hydrofluoric acid. At the joints, regular compression fittings are readily taped to provide full end-to-end protection of the raceway.

Write for the free data bulletin DEK-15 describing where and how to use ELECTRUNITE "Dekorun-Coated" E.M.T.

REPUBLIC STEEL CORPORATION
STEEL AND TUBES DIVISION
224 EAST 131st STREET • CLEVELAND 8, OHIO

Republic
ELECTRUNITE



"Dekorun-Coated" E.M.T.

LIGHTWEIGHT THREADLESS RIGID STEEL RACEWAY

Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications, . . . as selected by Technical Editor, Harry McCormack

Unit operations

Seventh Annual Review Operations covered this year and authors follow: Absorption & Humidification — R. L. Pigford; Adsorption — B. L. Harris; Centrifugation — J. O. Maloney; Crystallization — C. S. Grove and J. B. Gray; High Temperature Distillation — T. J. Walsh; Evaporation — W. L. Badger and R. A. Lindsay; Solvent Extraction — R. E. Treybal; Filtration — S. A. Miller; Fluid Dynamics — Max Leva and Murray Weintraub; Heat Transfer — Geo. T. Skaperdas; Ion Exchange — Robert Kunin; Materials Handling — R. L. Speaker; Mixing — J. H. Rushton; Size Reduction — L. T. Work.

Some new authors are included this year. The bibliographies accompanying each paper are, as usual, an important part of the contribution. 75 pages. ("Industrial & Engineering Chemistry," January 1952, page 21)

Healthful working conditions: human, economic significance

Author comments on the worker's first impressions of the place of work and tells how important these impressions are. Describes how the program of the National Association of Manufacturers has developed. Some important items have been: sound standards for healthful working conditions and proper sanitation; survey of industrial health practices; health and safety education for employees. Lists items which every company should provide. 3 pages. ("Modern Sanitation," January 1952, page 36)

Vacuum for industrial chemical processes

Comments on the various instruments which may be used to evacuate process equipment. The steam ejector, its construction, operating characteristics, and mathematical calculations relating to design and operation are considered. Single and multi-stage ejectors are commented on and calculations are indicated to arrive at a solution to necessary stages for a fixed objective. Cooling water quantities required for specified conditions are shown graphically. Plants for crystallizers, for rapid evacuation, and for cooling are discussed. 11 pages, 17 figures, 3 pages of discussion. ("Trans. Institution of Chemical Engineering, London," Volume 27-49, page 101)

Justifying air conditioning investment

Cites a specific example and states assumptions and figures used to obtain an answer. Suggests air conditioning be planned in early stages of construction and possible expansion considered. Air conditioning affected by revised production methods, and some difficult conditioning problems arising from required processing conditions are commented on. 3 1/2 pages, 4 photos. ("Heating Piping and Air Conditioning," February 1952, page 71)

Use of dielectric measurement in continuous processes

Weight and moisture of sheet materials being measured continuously by capacitance-measurement techniques are presented. Covers principles and application of the technique and describes how capacitance measurements may be made on solids, liquids, and gases. Future applications are commented on. 7 pages, 10 figures. ("Instruments," December 1951, page 1434)

Thermodynamic properties of chlorotrifluoromethane

The use of this material as a low temperature refrigerant, under the name of "Freon 13," has made it desirable to know more about the thermodynamic properties. Reported investigation included: Vapor pressure at low and high levels; P. V. T. relationship of the gas; saturated liquid density and critical constants; and specific heat. Equipment used and operating techniques are described. Results are tabulated or shown graphically. Comparison of results of present investigation and data in literature is made and discussed. 8 pages, 7 figures, 5 tables. ("Industrial and Engineering Chemistry," Jan. 1952, page 188)

Control methods for a batch process

A recently built magnesia insulation plant is used as an example. Describes the admixture of components in the slurry, the dewatering of the slurry, its preheating, molding, and drying. 5 pages, 9 figures. ("Chemical Engineering," January 1952, page 140)

Equilibrium constants given for heavier hydrocarbons at subatmospheric pressure

Author reports the results of new experimental work wherein data was obtained for developing K charts for each component. Charts cover pressure 10 to 1000 mm Hg absolute and temperature 100 to 700°F. Equilibrium still used is sketched and described. Effects of temperature and pressure on K values discussed. 6 pages, 4 full page charts, 1 figure. ("Petroleum Refiner," February 1952, page 111)

Production of acetic anhydride by catalytic cracking of acetic acid

Author presents chemistry of the process as a background for preliminary research. Four major research objectives: Confirmation of the assumption that reactions predicted could be carried out separately and could be controlled. Data as to temperature, pressure and feed rate on reactions; ascertaining by-products; and determining thermo chemical data necessary for plant design are covered. Equipment

for laboratory investigation is shown by drawing. Results are plotted and tabulated. Pilot plant investigation follows same procedure. At this stage construction materials were tried out and final decision reached. Full scale plant was then built and put in operation. Some specific items are commented on, and operating data supplied for full-scale plant. 8 pages, 9 figures. ("Trans. Institution of Chemical Engineering, London," Volume 27-49, page 47)

Fertilizer conditioners

Paper with this title calls attention to the desirability of having commercial fertilizers in a loose, easily spreadable condition. Cites the troubles caused by the absorption of excess moisture. Experiments were conducted to evaluate the conditioning effects of many materials used in fertilizers of varying moisture content. Materials were used in various particle sizes. Tests used for evaluation are stated. Experimental results are tabulated. 6 pages, 4 charts, 3 tables. ("Agricultural Chemicals," Feb. 1952, page 38)

Determining low concentrations of acetaldehyde and acetone

Authors state that method (iodoform reaction) was developed to determine acetaldehyde and acetone in solutions where the concentration of materials to be determined was very low. A study was made to find such operating conditions as would supply reproducible results. 5 pages, 4 figures, 6 tables, ("Analytical Chemistry," October 1951, page 1473)

Sodium gluconate production

Describes pilot plant production of sodium gluconate. Objective was to develop a process and operate it to the extent that construction and operating costs could be determined. Plant and procedure are described. Production factors evaluated were: Antifoam agents, sterilization methods, type and volume of inoculum, agitation, air pressure and aeration rate, sugar concentration, and depth of medium. Schematic drawing shows plant units and their arrangement. Operating data and results are tabulated. Cost estimates are presented. 6 pages, 6 tables, 4 figures. ("Industrial & Engineering Chemistry," February 1952, page 435)

Vacuum freeze drying

Author discusses the principles of freeze drying and presents the present state of the art. Mentions the advantages in freeze drying under specified conditions. Enumerates the materials now being dried by this method. Presents no new data. 4 pages, 1 photo. ("Trans. Institution of Chemical Engineering, London," Volume 27-49, page 19)

Chemistry of tobacco

A symposium including papers on: Chemistry and Biochemistry of Green Tobacco; Alkaloids of Tobacco, Identification and Determination; Nicotine Sulfate from Nicotiana rustica; Metabolism of Nicotine and Nature of Tobacco Smoke Irritants; Cigarette Tobaccos, Chemical Changes during Processing; Chemical Changes in Tobacco during Flue Curing; Flue-Cured Tobacco, Chemical Composition of Rib and Blade Tissues; Nitrogen Compounds in Fermented Cigar Leaves; and Cigar Tobaccos, Chemical Changes that Occur during Curing. 43 pages, 34 tables, 16 figures. ("Industrial & Engineering Chemistry," February 1952, page 266)

APRIL, 1952

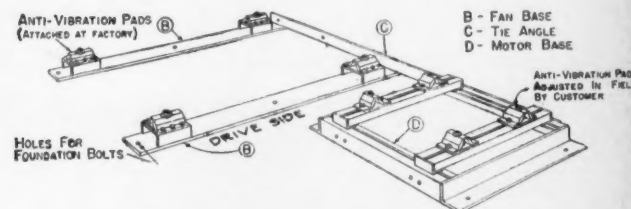


Tips on Getting the Best Service from your Fans

ISOLATE FAN AND MOTOR NOISE FROM THE SYSTEM

1. With canvas duct-to-fan connections —

Today's correctly designed fan is a quiet running fan. However, any noise or vibration in the fan or motor can be transmitted throughout the ducts. Canvas or other flexible connecting material can isolate much of the noise at its source.



2. With rubber insulation base

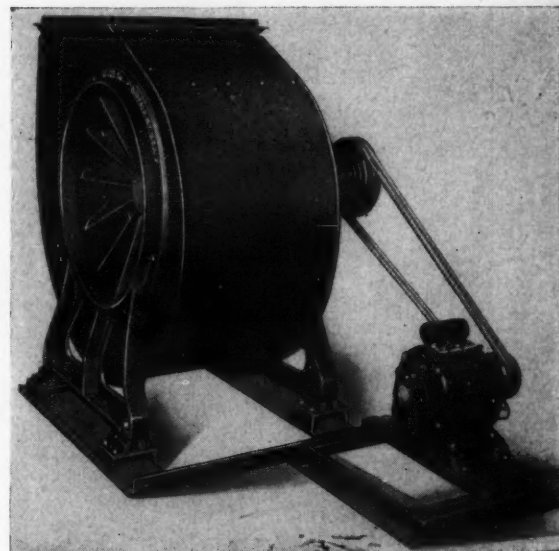
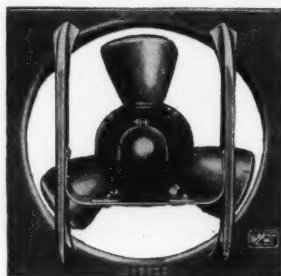
Another place to isolate any vibration or noise is at the fan base. At right, is shown the Buffalo Silent Floating Fan base adaptable to any arrangement of Buffalo Limit-Load Fan. Adjustable anti-vibration pads effectively insulate the fan from the foundation, as far as noise is concerned. Buffalo Limit-Load Fans are extremely quiet to start with, since all wheels are dynamically balanced at the factory for vibrationless operation. Also, Buffalo backward double curved blades, special scroll housing shape and inlet guide vanes further reduce noise.

3. Resilient-mounted motors

Where fans are direct-connected to the motor, there is more opportunity for vibration to be transmitted from motor to fan and vice versa. In all "Buffalo"

disk fans like this BREEZO Fan shown, the motors are resilient-mounted and the wheels in balance. For further information on the question of fan or system noise, the "Buffalo" engineering staff will be happy to assist you.

"Buffalo" Breezo Fan, one of a complete line of propeller fans for low-cost local ventilation.



Buffalo Limit-Load Fan with silent, floating base. Sizes available from 600 to 500,000 cfm. WRITE FOR BULLETIN 3737.

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When inquiring check CP 1910 on handy form, pgs. 2-3

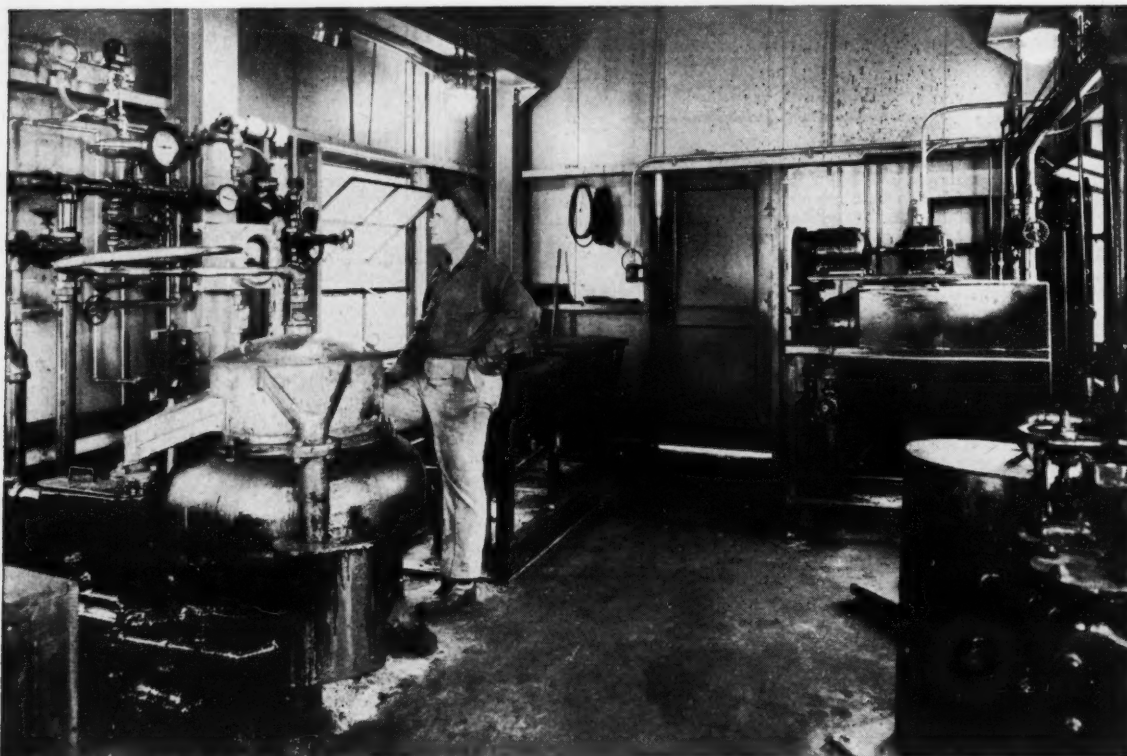
Unlocking the tar chain

Because the Sharples centrifugal process for tar dehydration produces a low viscosity tar of constant low moisture content; tar still operation is greatly simplified, and maximum production of light fractions is obtained. Operating and maintenance costs are reduced; initial investment and floor space are minimized—and a whole chain of valuable products is made available to producers of both coke oven and water gas tar.

Sharples centrifugal processes, in addition to tar dehydration, cover a wide range of processing—from caustic soda and vegetable oil refining, to continuous soap production. It would pay you to investigate the Sharples centrifugal naphthalene process.

Sharples centrifuges for the chemical and pharmaceutical industries, continuously separate, clarify, dehydrate, and classify by particle size—numerically, these applications run into the hundreds; economically, they are proving their efficiency and high productivity.

If you are developing, or wish to improve a process, get in touch with Sharples—seven different centrifuge types—your assurance of an unbiased recommendation.



Typical Sharples Tar Dehydration Process Installation

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BRIEFS

Thermal insulation for industrial requirements

Paper is the second in series and deals specifically with design considerations for high temperature range insulation. Author enumerates those things to be considered in choosing insulation, such as: thermal, physical, chemical, and moisture conditions to be encountered; safety; economics; availability; and time. Various characteristics of insulation and accessories are tabulated. Sketches illustrate application of insulation to varied shapes, and suggestions are made as to preferred methods. 5 pages, 5 sketches. ("Petroleum Refiner," February 1952, page 117)

Hypersorption design — modern advancements

Calls attention to more than four years commercial use of this process. States that units ranging up to capacities of 16 MMCFD and producing as many as four well fractionated products from a single tower are in operation. Several sketches illustrate recent designs. Comments are made on units for four specific purposes. 6½ pages, 14 figures, 4 tables, discussion. ("Chemical Engineering Progress," November 1951, page 585)

Determination of phenols in aqueous wastes from coke plants

Necessity for determining smaller concentrations of phenols in waste waters inspired study in which this method was developed. Accuracy of method is about 20 parts per billion; necessary time is 30 min to 2 hr. Apparatus, reagents and procedure stated. 4 pages, 7 tables. ("Analytical Chemistry," December 1951, page 1788)

Ammonia synthesis at 1000 atmospheres

Paper describes and discusses a plant recently built in Mississippi and which embodies some advanced ideas in construction and operation. Plant is a cooperative and built with the objective of supplying nitrogenous fertilizers. Management has released figures on costs of construction and estimated operating costs such as are not often available. Authors are not clear as to whether figures are estimates or actual. Plant is compared with conventional as to units, construction costs, operating costs and operating techniques. 11 pages, 8 figures, 5 tables. ("Industrial & Engineering Chemistry," February 1952, page 254)

Boron determined by application of ion exchange

Conventional methods for determining boron are commented on. New method is described including apparatus, reagents, and procedure. Effect of various elements investigated. Method applied to analysis of varied commercial materials and results tabulated. 2½ pages, 2 tables. ("Analytical Chemistry," January 1952, page 182)

Organization, administration of chemical plants' maintenance

Author comments on the maintenance costs of representative chemical companies as an important item, and calls attention to certain "hidden items" not included in these figures. Stresses the importance of people in any organization, particularly one for plant maintenance. Lists eight

CHEMICAL PROCESSING



BRIEFS

basic requirements for proper functioning of division, the kind of personnel required and charts their relationships. Calls attention to the opportunities in this field for the engineer who possesses the desired personality and training. 5 pages, 3 figures, 3 tabulations. ("Chemical Engineering Progress," February 1952, page 57)

Chlorinated rubber from latex

Objective: to find new ways for producing chlorinated rubber from latex. Techniques for latex chlorination are stated and discussed. Chemical stability is commented on. Technical properties and technical applications are discussed. 5 pages, 10 tables, 4 figures. ("Industrial & Engineering Chemistry," November 1951, page 2535)

Mechanism of the drying of solids

Two companion papers are presented, one relates to the forces giving rise to the movement of water in granular beds during drying, the other, the measurement of suction potentials and moisture distribution in drying granular solids. Each paper contains descriptions of some new experimental equipment. Several materials were dried and characteristics noted and tabulated. 18 pages, 25 figures, 4 tables. ("Trans. Institution of Chemical Engineering, London," Volume 27-49, page 1)

Titanium pigments in rubber, plastic compositions

Discusses the various titanium pigments, their chemical and physical characteristics and connects these things with the specific use. Comments on the influence of the various pigments on the properties of the rubber or other plastic material with which it may be compounded. 9 pages, 12 figures, 3 tables. ("Rubber Age," Feb. 1952, page 597)

Ultra-modern coal handling equipment

A recently completed plant with a capacity of 600 tons per hour is described. Items commented on: maneuverability, automatic control or selective manual operation, wound rotor motors and selection procedure. 4 pages, 6 photos. ("Industry and Power," February 1952, page 67)

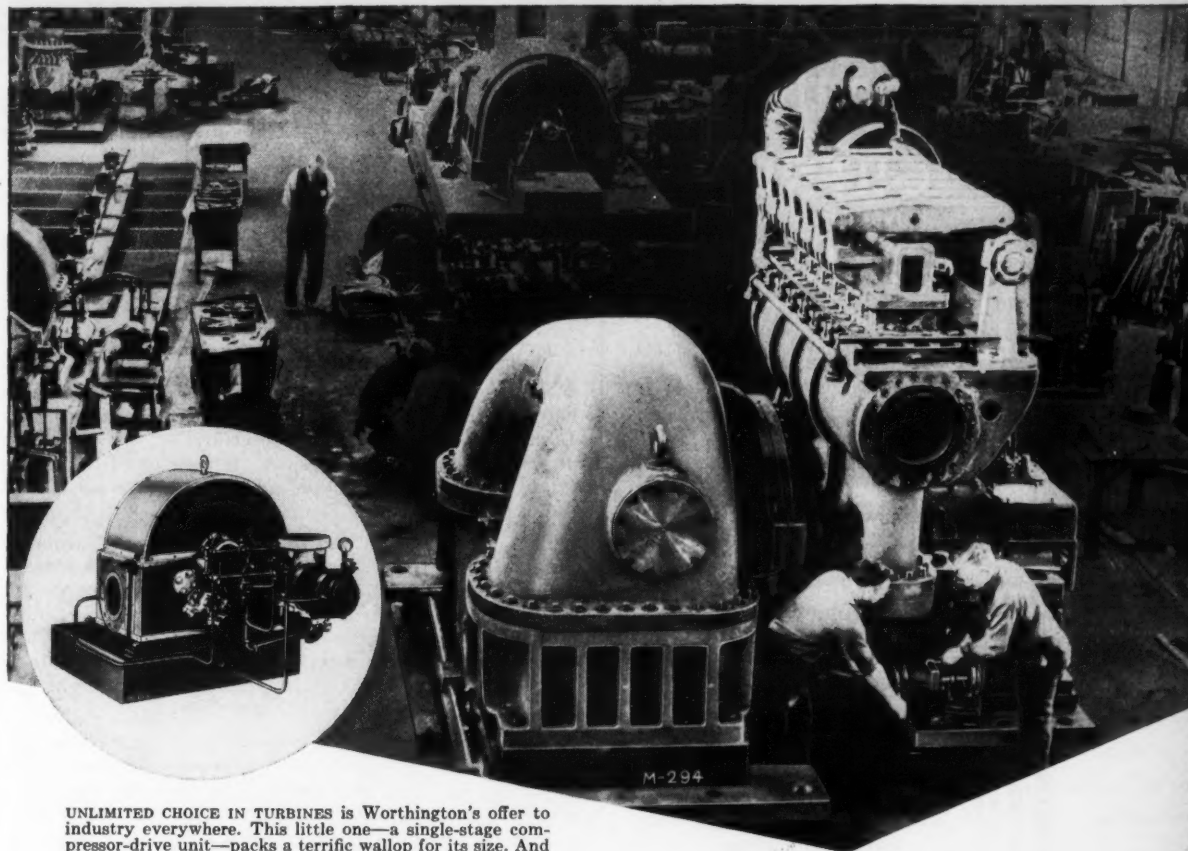
Product liability

Authors discuss recent court decisions relating to the liability of a manufacturer as regards his products. Decision is contrary to many of our customarily accepted views as to manufacturer's responsibilities covering customers' use of his products. 4 pages. ("Agricultural Chemicals," February 1952, page 34)

Recent advances in filtration theory

Author reviews the concepts of filtration which have led to our present understanding of this unit operation — if there is any accepted understanding. Comments on the nature of specific resistance to filtration, friction through filter cake. Discusses validation and application of theory. 5 pages, 2 figures, bibliography. ("Chemical Engineering Progress," October 1951, page 497)

APRIL, 1952



UNLIMITED CHOICE IN TURBINES is Worthington's offer to industry everywhere. This little one—a single-stage compressor-drive unit—packs a terrific wallop for its size. And that multi-stage 24,000-hp compressor-drive giant is one of the largest ever built for this type of service.

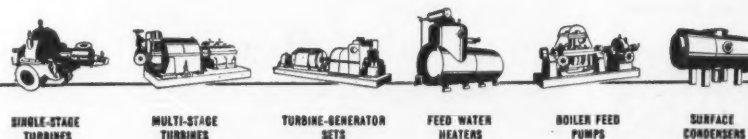
Single-stage midgets to multi-stage giants

Whether your turbine requirements call for the biggest or the smallest—straight condensing . . . straight non-condensing . . . extraction . . . mixed pressure extraction . . . low pressure . . . high back pressure . . . for mechanical or generator drive . . . with governors for constant or variable speed—Worthington has an answer.

Each Worthington turbine is designed to make the steam do more work, so you save power and money throughout its long life.

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Steam Turbines

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After Oil Well Fire Burns 5 Days Dry Chemical Extinguisher Puts It Out in 50 Seconds

Previous experience learned in a 1950 fire pointed out technique to be used: fire fighters diverted water stream before going in with dry chemical

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CORROSION PROTECTION
AGILENE
(Polyethylene)
AGILIDE
(Hard Polyvinyl Chloride)
FABRICATED EXHAUST SYSTEMS

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EXHAUST FAN & HOUSING
FUME DUCT
EXHAUST HOOD
LINED TANK

Exhaust Systems for Corrosive vapors and fumes...

- Complete or partial exhaust systems built to your specifications.
- Fabricated entirely from Agilene or Agilide.
- Will outlast STAINLESS STEEL, ALUMINUM, LEAD, etc.
- Can be incorporated into existing systems.

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A SPECTACULAR oil well fire that raged for five days in the Las Mercedes oil fields of Sociedad Anonima Petrolera Las Mercedes in Venezuela (an affiliate of the Texas Co.) was extinguished recently by dry chemical fire extinguishers in 50 seconds. It is believed the largest oil well fire yet extinguished by dry chemical.

The Las Mercedes fire occurred when an electric spark ignited some surface gas. Resulting blowout around the outside of the well casing tossed mud, rocks, water and gas 30 feet into the air. Preliminary attempts at extinguishment by foam, water and carbon dioxide failed, and the company summoned outside help by radio. Six, 150-pound wheeled and twenty, 30-pound hand dry chemical fire extinguishers were brought to the scene.

Because of the time required to obtain the necessary wheeled units, no further attempt was made to extinguish the fire until the morning of the fifth day. By that time, the gas pressure plus the erupting water and rocks had formed a large crater 50 feet in diameter and 25 feet deep where the drilling rig once stood.

In preparation for extinguishment, the entire well area was cleared of all metal and equipment. Then bulldozers threw up a large dike in a semi-circle around part of the crater. First, an attempt, that failed, was made to extinguish the fire by steam piped to the crater area from two boilers. Water was then played on the area for cooling purposes.

Meanwhile, the six wheeled units were placed in a semi-circle behind the earthen dike. Ten minutes after the first attempt, the water hoses were diverted from the fire and it was attacked with dry chemical — extinguishment being achieved in 50 seconds.



Fire fighters pouring water into crater to cool it off and prevent a flashback

High pressure water lines were immediately played into the crater to prevent a flashback. With the fire out, the company re-capped the well in four days.

Of help in this incident were lessons learned in putting out a 1950 oil well blaze in Venezuela. At that time, the fire fighters tried to put out the fire with dry chemical, plus two streams of water. The effort failed, apparently because the water knocked a hole in the dry chemical blanket, thereby providing a source of oxygen for the fire. Later, the fire was put out by dry chemical alone. Thus, at Las Mercedes the water stream was diverted before going in with the dry chemical.

Dry extinguisher employed was sodium bicarbonate specially treated to make it free flowing and moisture repellent.

(Information courtesy of manufacturer of fire extinguishing apparatus, Ansul Chemical Co., Dept. CP, Marinette, Wis.)

Hg-contaminated surfaces rendered non-hazardous for prolonged periods...

decontaminator reacts with mercury and salts to form non-volatile material; safe, easy to use

Uses: For decontaminating all types of surfaces exposed to mercury in any of its many forms — metallic mercury, mercury salts, etc. Suggested for use in all areas — open, confined, heated, air conditioned, etc. May be mixed with water and applied to contaminated surfaces by spraying, washing, mopping . . . or may be applied in dry powder form by swabbing or sweeping into cracks or crevices. May also be used in combination with saturated sawdust for periodical sweeping.

Particularly recommended for rough surfaces such as worn concrete and wood floors with cracks, crevices, or open joints (either solution or dry powder form). Also recommended for walls, ceilings, and equipment (solution form).

Features: HGX reduces mercury contamination in the air by getting at its source — it forms a film over the finely divided globules of mercury and reacts to produce a non-volatile form (sulfide form). Same reaction takes place in rendering the derivatives of mercury non-hazardous. Ingredients of the decontaminator are classified as non-poisonous. No allergic reactions have resulted from its use. There are no odors, obnoxious gases or stains, and nothing is harmed that water will not harm.

Tests have shown prolonged periods of protection, even months after the application was made. Air samples showed only 0.02 mgm Hg/cu m of air taken 1/2" above treated globules of mercury. Untreated areas showed 0.3 mgm/cu m — or 3 times the allowable safe concentration (average accepted limit for safety is 0.1 mgm Hg/cu m of air).

Description: HGX is a water soluble white powder

CHEMICAL PROCESSING

When inquiring check CP 1913 on handy form, pgs. 2-3

containing a chelating [inner complex compound] and a dispersion agent.

For dry treatment, 8 oz of HGX powder is distributed evenly over 100 sq ft of floor, making sure to brush or sweep into all cracks or crevices. Finally, water should be sprinkled, swabbed, or sprayed over the area.

In the wet method, 1 lb of HGX is dissolved in 5 gal of water, leaving a milky solution. This then is applied with a sprayer, whitewash brush, or mop. Care should be taken to saturate wooden floors and let stand overnight.

(Product of William M. Stieh and Co., Inc., Dept. CP, 20 Vesey Street, New York 7, N. Y. . . . or for more information check CP 1914 on handy form, pages 2 & 3.)

**Easy to slip on and off,
comfortable mitt cuts
hand injuries**

Uses: Protects hands during handling brick, tile, metal sheets, cartons, cases, sharp-edged objects, etc.

Features: Cool and comfortable, adjustable to any size.

Description: Safti-Mitt Handpads, Style 1201, are made



of heavy horsehide. Adjustable tie string keeps pad on, but also permits easy removal when desired.

(Product of General Scientific Company, Dept. CP, 27th & Huntington Sts., Philadelphia 32, Pa. . . . or for more information check CP 1915 on handy form, pages 2 and 3.)

**Emergency ventilating and cooling
simple with motorless, fanless
exhauster-blower . . .**

light-weight unit is easy to install, presents less danger of explosion or fire

Uses: Removing dust, smoke, and fumes from tank or other confined area prior to entering the area. Can work as exhauster for sucking the contaminants out, or as a blower (when turned around) for blowing them out or cooling.

Features: Portable and light-weight. Largest model, the No. 10, weighs 47 lb but handles 5160 cfm (at line operating pressure of 80 psig). Device is easily and quickly installed, often where motor and fan assemblies won't fit, and it offers less explosion hazard because of lack of moving parts and electrical motors.

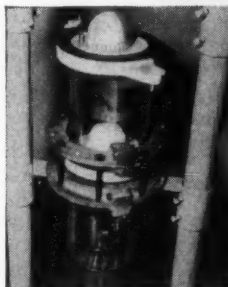
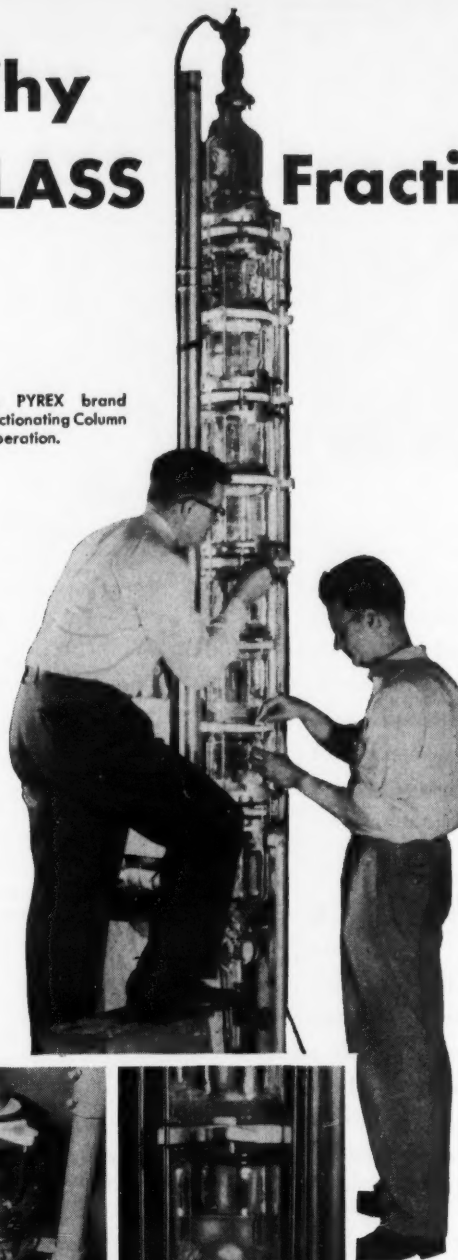
Description: The MSA-Lamb Air-Mover uses the Venturi effect for inducing air flow. Compressed air (or steam) provides the energy, and is led in through a connection at the bell end.

Three models are available. The No. 3 weighs 6½ lb, moves 800 cfm of air with 90 psig line pressure supply. The No. 6 weighs 31 lb, moves 3150 cfm air with 70 psig

(Continued on page 141)

Why GLASS Fractionating Columns?

Sampling PYREX brand
Glass Fractionating Column
during operation.



Sampler Plate and Down-
comer Bottom Section.



Transparency of glass permits
visual observation of flow and
performance.

PYREX brand Glass Fractionating Columns offer you unusual advantages in solving fractionating and absorption problems.

Made of PYREX brand glass No. 7740, these units are resistant to the corrosive action of acids, except hydrofluoric, and mild alkalis . . . and prevent product contamination. Exceptionally sturdy, they provide high resistance to both physical and thermal shock. Crystal-clear transparency permits observation of the flow and performance at any stage. Gas and liquid samples may be taken at any time without disturbing operation. Throughput is 20 to 25 gallons per hour.

PYREX fractionating columns are available in 4" and 6" sizes with any number of plates. Corning supplies complete glass column and metal accessories, except for 2" iron pipe support.

Standard packed columns are available in 4", 6", 12" and 18" diameter sizes, which may be packed with PYREX brand Glass Raschig Rings. Most important, PYREX brand fractionating columns at a reasonable cost.

COMPARATIVE EFFICIENCY OF 6" PLATE COLUMN

SYSTEM	OVER-ALL PLATE EFFICIENCY		PRESSURE DROP/PLATE	
	Vapor Velocity (ft/sec)	% Efficiency	Vapor Velocity (ft/sec)	In. of liquid at boiling pt., for static seal* of ¾ in.
Benzene:	0.3	52	0.1	.8
Carbon- Tetrachloride	0.5	65	0.3	1.1
	0.6	63	0.5	1.3
Methyl- cyclohexane;	0.3	85		
Toluene	0.5	82		
	0.6	80		

*Static seal is distance from top of slot to top of downcomer.



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Please send me Data Sheet on PYREX brand Fractionating
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Company _____
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25 YEARS OF LEADERSHIP IN FASTENINGS OF STAINLESS STEEL

To YOU, the 25th Anniversary of Anti-Corrosive is an assurance that when your requirements call for fastenings of stainless steel, you can depend on Anti-Corrosive to serve you best! Anti-Corrosive is the oldest, largest and best-known firm dealing exclusively in stainless steel fastenings . . . an enviable position in a fast-growing industry . . . your guarantee of product excellence!

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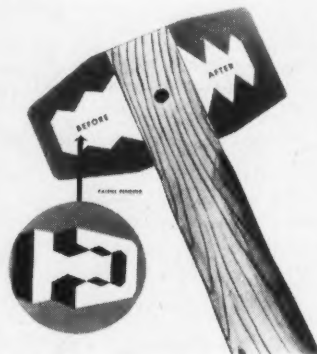
SAFETY

Hammers keep balance and original weight — no mushrooming!

won't chip, spark, or flake under heavy pounding

Uses: For general as well as heavy hammering.

Features: Interior of hammer is hollow and walls are corrugated. Under continuous heavy pounding,



Hollow and corrugated chamber yield controlled compression

opposing angles of corrugations approximate each other at pre-determined rate. Compression of malleable metal head is thus retarded.

Description: Controlled compression hammer is made of non-ferrous, copperbase alloy. Hammer has high degree of tensility and is available in six sizes and weights: $\frac{3}{4}$, $1\frac{1}{2}$, $2\frac{1}{4}$, 3, $4\frac{1}{2}$, and 6 lb.

(Product of Cushman Corporation, Dept. CP, Larchmont, N. Y. . . or for more information check CP 1918 on handy form, pages 2 and 3)

Use of glass blocks as lighting aid

Use of glass blocks to improve daylight conditions in industrial plants is described in 22-page illustrated booklet. Presented in non-technical text, booklet shows various effects of lighting methods employed in many plants and how the problems were overcome or the methods by which conditions were improved.

Diagrams and photos show how daylight is transmitted with ordinary glass windows and with light-directing glass block. Special emphasis is placed on the importance of good lighting for worker production and health, especially where jobs call for close, exacting work.

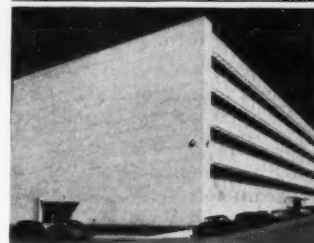
"Daylight for Industry" is issued by American Structural Products Co., Dept. CP, Ohio Building, Toledo, Ohio. When inquiring specify CP 1919 on handy form, pages 2 and 3.



Coated Abrasives Division

NOW SERVED by

DAY DUST CONTROL



3M Office Building

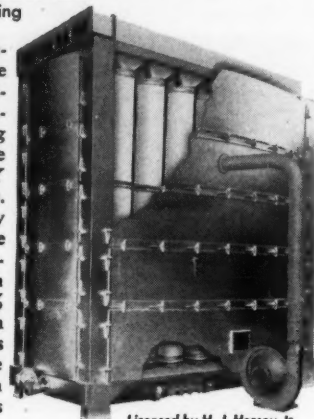
"Meets our rigid requirements . . .

Keeps our plant clean . . .

Keeps our maintenance costs low."

These are typical statements coming from the Coated Abrasives Division of Minnesota Mining and Manufacturing Co., St. Paul, since the installation of DAY Type "AC" Dust Filters.

Used for the recovery of abrasive materials, the DAY Filters are reclaiming abrasive dusts with better than a 99.998% efficiency. This high filtering efficiency is possible because the principle of operation in a DAY Filter permits the use of a high grade filtering felt. In addition, the other rigid dust control requirements of the 3M Company are being met.



Licensed by H. J. Hersey Jr.

ADVANTAGES OF DAY "AC" FILTERS

Continuous-Automatic Operation . . . reverse air jet rings move slowly up and down the filtering tubes, cleaning continuously.

Constant Air Volume . . . assured by back pressures leveling off after starting.

Higher Air-To-Cloth Ratio . . . 10, 15, or even 20 to 1 ratios with uniform back pressures.

Smaller Units, Less Floor Area Required . . . with no sectional shutdowns necessary for cloth cleaning, less filter is required for equal volumes of air.

Separated Dust Streams . . . several different product streams may be handled simultaneously without mixing.

EASY PLANT HOUSEKEEPING: The 3M Company also reports that these advantages make plant housekeeping easy and result in a clean plant—an aid to employee morale, high production and low plant maintenance costs.

71 YEARS' EXPERIENCE IN INDUSTRIAL DUST CONTROL: The DAY Company is proud to offer skilled engineering and service gained through 71 years' experience in the engineering, manufacture and installation of dust control systems for industry. If you have a dust problem, DAY can provide an effective and economical solution. DAY engineers are at your service for plant studies and cost estimates. CALL OR WRITE-TO-DAY FOR MORE INFORMATION.



The DAY Company

852 3rd Avenue, N.E., Minneapolis 13, Minnesota
IN CANADA . . . Box 70, Fort William, Ontario
Branch Plants in Ft. Worth, Buffalo and Welland, Ontario

When inquiring check CP 1920 on handy form, pgs. 2-3

CHEMICAL PROCESSING

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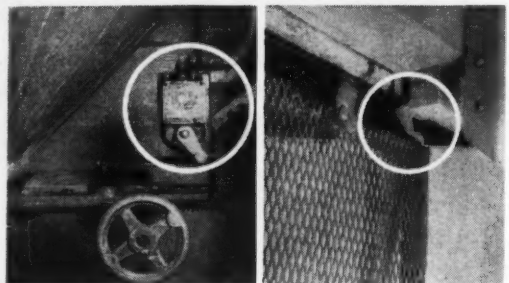
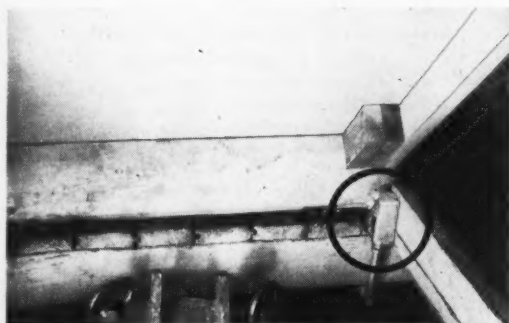
SAFETY

(Continued from page 139)

line pressure supply. Specifications of the No. 10 have been given above.

(Full details are included in Bul DP-5, issued by Mine Safety Appliances Company, Dept. CP, Braddock, Thomas, and Meade Streets, Pittsburgh 8, Pa. . . or for more information check CP 1921 on handy form, pages 2 and 3.)

Blending safety into production



These three photographs show safety interlock system used on a conical blender at The Edwal Laboratories, Ringwood, Illinois. Blender is located in a cubicle with a sliding wire-mesh door in front of it. Loading is done through a trap door in the wooden platform above the unit.

Limit switches (indicated by circles) are placed on 1) the trap door, 2) the sliding cubicle door, and 3) outlet gate of the blender itself. Switch on outlet gate is made by Allen-Bradley, other two are Westinghouse limit switches.

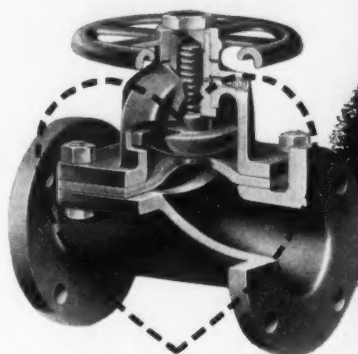
All three switches are tied into circuit so that blender can't be operated unless sliding door, trap door, and blender gate are closed.

Emphasizes safe handling of radioactive material

Preventing contamination by radioactive isotopes is the subject of a 24-page handbook distributed by the National Bureau of Standards. Booklet offers specific recommendations for care and handling of radioactive material. Safety precautions and steps to contain the spread of contamination are presented.

The importance of uncontaminated equipment to insure precise and reliable results is stressed. To obtain Handbook 48 remit 15c direct to National Bureau of Standards, Govt. Printing Office, Dept. CP, Washington 25, D.C.

for the heart of the Saunders Patent Valve . . .



**Hills-McCanna offers
a complete selection of
diaphragm materials to best suit
your individual requirements**

Code Number	Base	Stock Type	Service Quality
R-1	Rubber	Carbon Black	Acid/Alkaline, Heat Resistant
R-2	Rubber	Non-Carbon Black	High Acid/Alkaline Resistant
R-3	Rubber	Carbon Black	Non-Fat Food Service
R-4	Rubber	Carbon Black	Special Non-Contaminating
R-5	Rubber	Non-Carbon Black	Acid/Alkaline, Abrasion Resistant
N-1	Neoprene	Carbon Black	Acid/Alkaline/Oil/Heat Resistant
N-2	Neoprene	Carbon Black	Fat Food Service, Non-Contaminating
N-3	Neoprene	White	Special Non-Contaminating
H-1	Hycar	Carbon Black	Acid/Oil/Heat Resistant
K-1	Butyl	Carbon Black	Acid/Heat Resistant
T-1	Tygon	Carbon Black	Acid Resistant
C-3	Compur	Carbon Black	Solvent Resistant
L-1	Special Polyethylene	White	Acid Resistant (66° Be Sulfuric)
M-1-25	Kel-F	Non-Carbon Black	High Acid/Alkaline Resistant

IN over 15 years of supplying Saunders Patent Diaphragm Valves to the processing industries, we have developed an extensive background of experience in the recommendation of the proper diaphragm material to meet a given set of conditions. This experience proves that only with diaphragms especially selected for your needs can you get the best service from your diaphragm valves. The wide range of diaphragm materials and their basic characteristics are shown in the table above. Each of these has advantages and limitations—no one is a cure-all—and the secret of successful selection of the right diaphragm is a thorough knowledge of these advantages and limitations.

Here at Hills-McCanna, recorded in the service records, is the experience that has resulted from valving over 2500 substances. This data is constantly being brought up to date to take into consideration the development of new diaphragm materials such as polyethylene and Kel-F. To any user of Hills-McCanna Valves, this record assures

you of having the knowledge gained from thousands of other installations working for you.

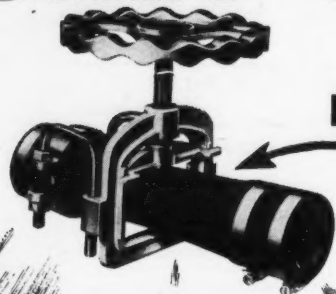
Whatever your valving requirements, if they involve handling corrosive substances, slurries, semi-solids or other hard-to-handle fluids, we would welcome the opportunity to go over your needs with you. Hills-McCanna Diaphragm Valves are available in sizes from 3/4" to 14" handwheel or lever operated or arranged for automatic or remote operation. Choice of 14 diaphragm materials, 48 body materials. Write for descriptive literature. HILLS-McCANN CO., 3025 N. Western Ave., Chicago 18, Illinois.

HILLS-McCANN
saunders patent
diaphragm valves

*Also manufacturers of Proportioning Pumps
Force Feed Lubricators • Magnesium Alloy Castings*

When inquiring check CP 1922 on handy form, pgs. 2-3

YOUR MONEY BACK



IF IT PLUGS

Basically, the Flex-Valve is just a piece of flexible tubing and a clamp to squeeze it shut. It can no more clog than a length of pipe. So, if you can clog one of them in normal service, just tell us, for the "incredible-but-true" record, how in the world you did it, and we'll send you money back.

Flex-Valves have solved thousands of valving headaches—in as many plants as there have been installations made. They can handle anything that flows, including aerated or fluidized solids. They close bubble-tight over $\frac{1}{8}$ " solids. Open, the flow is straight-in-line with the service piping, and completely unobstructed. There are no moving parts in contact with the lading fluid. Available in both natural and synthetic materials for every corrosive or abrasive service.

Complete details on this unique principle of control valving in slip-on, flanged, and air-motor operated types are available on request. Ask for Bulletin 500—without obligation, of course.



1192

When inquiring check CP 1923 on handy form, pgs. 2-3

SAFETY

Blankets large fires with extinguishing fog spray . . .

non-clogging nozzle snuffs flames with 500 gpm

Uses: For extinguishing large, flammable-liquid fires, as well as wood, paint, and other types of hot fires.

Features: With spiral atomizing element that contains no small orifices or internal parts, non-clogging nozzle



delivers a 500 gpm fog blanket with large diameter and coverage and an effective reach of approximately 80 feet.

Description: Made entirely of bronze, nozzle has external vanes for added strength where it is needed in rough service.

Nozzle has $2\frac{1}{2}$ " connection and can be attached directly to a hose or turret gun, in place of conventional straight stream nozzle.

(Giant Model 500 fog nozzle is available from Bete Fog Nozzle, Inc., Dept. CP, 85 Pierce St., Greenfield, Mass. . . . or for more information check CP 1924 on handy form, pages 2 & 3.)

Presents valve models for steam and water

Eight-page bulletin describes features of manufacturer's automatic water and steam valves. Models of float, altitude, reducing, relief, and non-return valves are featured. Bul G-3 is issued by Golden Anderson Valve Specialty Company, Dept. CP, 2101 Keenan Bldg., Pittsburgh 22, Pa. When inquiring specify CP 1925 on handy form, pages 2 and 3.

WILLSON Safety Goggles



Keep You on the Safe Side
Style TAW50 for heavy duty with

- WILLSON Super-Tough® lenses
- Comfort-fitting eye cups
- Adjustable chain bridge
- Side screen ventilation
- Lenses easily replaceable

More than 300 other Eye and Respiratory Safety Devices carry this trademark



WILLSON
Dependable Products Since 1870

WILLSON PRODUCTS, INC., 227 Washington St., Reading, Pa.

When inquiring check CP 1926 on handy form, pgs. 2-3



Here's an AMAZING BRAND NEW SAFETY SIGN that will be welcomed by Safety Men! Brady Safety Signs stick to wood, glass, metal, concrete, etc. without moistening. May be applied to any clean surface in a jiffy. No screws, nails, bolts or skilled help necessary. All you do is peel from card, apply where wanted and the sign is up to stay.

Brady Safety Signs are made of durable cotton cloth, Silicone Coated to resist dirt, grime and moisture. CONFORM TO ASA Standard Z35.1-41. Select your requirements from a complete catalog of standard safety messages. Cost only a few cents per sign. Immediate delivery. Specials made to order.



When inquiring check CP 1927 on handy form, pgs. 2-3

CHEMICAL PROCESSING



For greater CHEMICAL RESISTANCE



576 apron with patch
586 apron without patch
in many sizes



insist on **APRONS**

by *Sawyer*

Highly resistant to acids, alkalis, oils, greases and other chemicals. Not affected by gasoline or most solvents.

Easy to clean — can be scrubbed in hot water or caustic solutions — or dry cleaned — positively will not crack, blister or peel.

100% waterproof — made with top quality base fabric saturation-coated first and then coated with 6 coats of Neoprene Latex.*

Tough as mule-hide — wear like iron, take endless snagging, rubbing, scraping, and still give full protection.

Also: Industrial suits, three-quarter and long coats, coveralls, and many other styles. All clothing made in black and yellow.

*Sawyer fabrics are coated by
The Brunse Company, a division of

**THE H.M. SAWYER
& SON CO.**

FROG BRAND

CAMBRIDGE
MASSACHUSETTS

When inquiring check CP 1928
on handy form, pgs. 2-3

APRIL, 1952

SAFETY

**Green plastic allows wide vision
yet cuts down glare while
shielding face . . .**

light-weight, acid-resistant visor locks in "up" or
"down" position for added safety

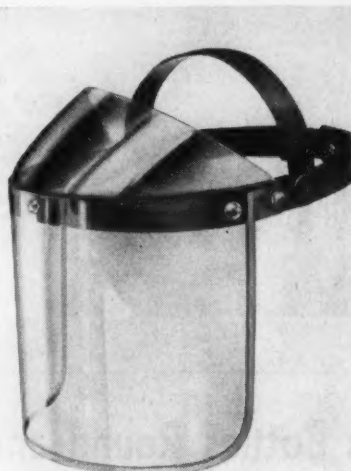
Uses: For face
protection when
working with or
near chemicals or
flying metals.

Features: Af-
fords extra wide-
angle vision and
still eliminates
glare from over-
head lighting. By
locking in up or
working position,
visor eliminates
chance of worker
adjusting it so that
it does not give
maximum protec-
tion.

Description:

Headgear is made
of cellulose acetate
and butyrate materials. Plastic spark protector is all-
green for easy vision, but is also available in clear color
and a special acid-resistant visor for work around chemi-
cals. Weighs less than 6 oz.

(Product of U.S. Safety Service Co., Dept. CP, 1215
McGee St., Kansas City 6, Mo. . . or for more informa-
tion check CP 1929 on handy form, pages 2 and 3.)



Affords wide-angle vision, elimi-
nates glare

Announce two cartridge and two filter type respirators

Four new respirators have just been added to the line made
by The DeVilbiss Company. Two are the cartridge type,
and two the filter type.

The MSC (cartridge) respirator offers protection against
low concentrations of light organic fumes, and vapors and
gases encountered in spray painting, degreasing, cementing
and similar operations; and can be used in the presence of
benzene, xylene, toluene, gasoline, naphtha, acetone, tur-
pentine, etc.

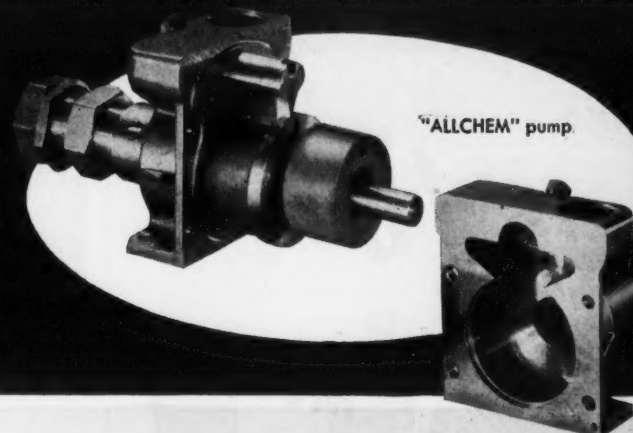
The MSF (filter) respirator is used for protection against
light concentrations of nuisance dusts produced in some
grinding operations, grain elevators, cement mills, and
other exposures not involving pneumoconiosis, silicosis, or
asbestosis producing dusts.

The MSD (filter) model, approved by the Bureau of
Mines, is recommended for protection against poisonous
and disease producing dusts as well as a combination of all
dusts — toxic, nuisance, and pneumoconiosis producing.
The chemical treated felt filter is reported to trap particles
as small as 24-millionths of an inch, but to provide easy
breathing and maintain full efficiency for long periods.

Model MSE (double cartridge) is also approved by the
Bureau of Mines. It is intended for just about the same
service as the MSC, but in addition protects wearer against
DDT and other insecticide sprays having a volatile carrier.

(The DeVilbiss Company, Dept. CP, 296 Phillips Ave.,
Toledo 1, Ohio . . . or for more information check CP
1930 on handy form, pages 2 and 3.)

"Engineered Fluorocarbons" MADE THIS CHEMICAL PUMP POSSIBLE



Impellers, bearings, packing of Chemelec Mixtures (TEFLON®-PLUS)
are impervious to chemicals and are non-contaminating, minimize
friction, maintain high efficiency.

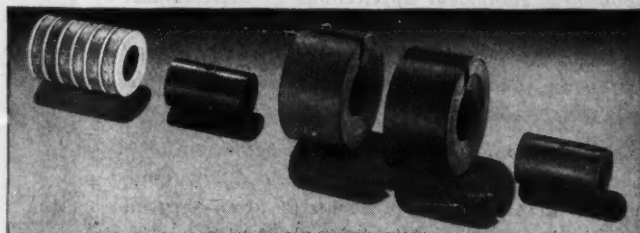
Eco Engineering Company of
Newark, New Jersey, makes this
"ALLCHEM" pump, suitable for pres-
sures up to 70 lbs., at 3400 R.P.M.,
for pumping anything that glass can
handle—acids, alkalis, solvents, oils,
pharmaceuticals, biologicals—without
chemical attack or contamination.

Chemelec Mixtures are duPont
Teflon to which another material has
been added in its fabrication to im-
part some characteristic which the
pure fluorocarbon does not possess.

These Teflon "alloys" offer an al-

most limitless series of new materials
for the designing engineer. Bring us
your problem and we will work with
you to determine the Chemelec Mix-
ture best suited to your requirements
of hardness, wear resistance, dimen-
sional stability, chemical resistance,
anti-friction qualities, dielectric or
conduction qualities, permanent mag-
netism, resistance to neutron bomb-
ardment, etc.

Also, there are metal surfaced
materials which may be soldered to
and materials which are cementable.



**UNITED
STATES
GASKET
COMPANY**

**FLUOROCARBON
PRODUCTS DIVISION**
FABRICATORS OF "TEFLON", "KEL-F"
AND OTHER FLUOROCARBON PLASTICS
CAMDEN 1, NEW JERSEY

*duPont trademark for its tetrafluoroethylene resin

When inquiring check CP 1931 on handy form, pgs. 2-3

IF WEIGHING, BLENDING OR
PROPORTIONING MATERIALS
IS IMPORTANT TO YOU . . .

THIS

NEW GUIDE

IS

MUST

READING



Richardson's new guide to automatic weighing, blending or proportioning of materials points out *new methods-new equipment applications* in these important processes. Simply find your material in the index, refer to the equipment section and you're on your way to improving your present operations through increased speed, economy and accuracy.

Let Richardson's 50 years of experience in building Automatic Weighing, Proportioning and Blending, equipment help you discover new and improved methods in your field—no matter what you handle.

Write today for your free copy of this guide Bulletin No. 0450.

RICHARDSON SCALE COMPANY

Clifton, New Jersey

Atlanta • Boston • Buffalo • Chicago
Cincinnati • Houston • Minneapolis
Montreal • New York • Omaha
Philadelphia • Pittsburgh • San Francisco
Toronto • Wichita

Richardson

7489

MATERIALS HANDLING BY WEIGHT SINCE 1902

When inquiring check CP 1932 on handy form, pgs. 2-3

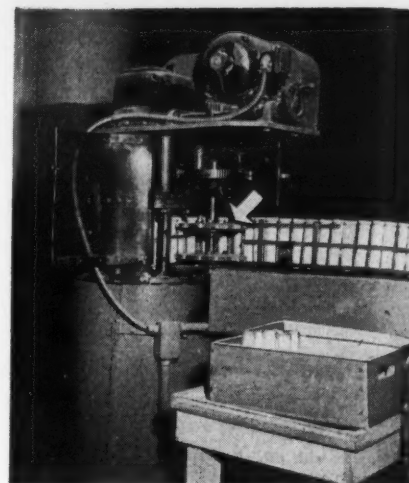
Page 144



Packaging

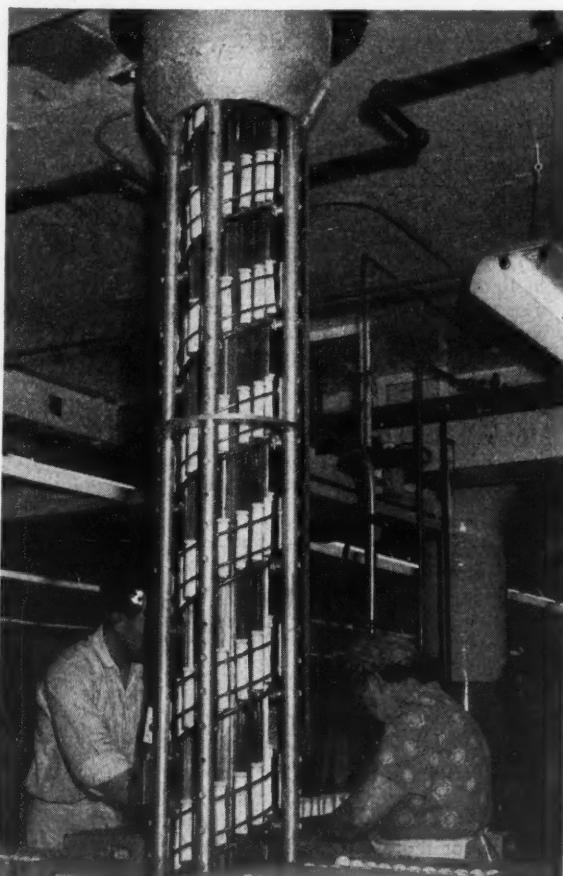
Bottles on their way to spiral tube conveyor with its driving motor mounted on top. Operators have opportunity here to remove any unsatisfactory bottles

Arrow indicates synchronized star-wheel feeder which guides bottles into position between vertical rods of conveyor. Open plastic door is closed during normal operation



Spirals Bottles Round and Round from Filling Room to Packaging Area

Unique spiral tube conveyor — a floor-to-floor handling system — keeps bottles upright, boosts output



PROBLEM: New components in the Alka-Seltzer packaging line at Miles Laboratories, Elkhart, Ind. — particularly a heat-sealing labeling machine — increased its capacity 50%. But the old, belt-conveyor method of conducting bottles from filling room to packaging area on floor below was too slow for full potential of new units to be realized. Additionally, it was desired that Alka-Seltzer bottles leave capping machine on second floor, and arrive upright at labeling machine on first.

Solution: Two E. W. Buschman Co. specially designed spiral tube conveyors met the greater speeds possible with the other units of the packaging line. Here's how the "vertical flight conveyors" work:

Bottles leave capping machine on upper floor standing

Seen here is an overall view of descent of bottles and metal guide rods: two on the sides and one underneath the bottles



Bottles leaving bottom of conveyor and being spaced out by gear (arrows) of labeling machine at far right of photo



CHEMICAL PROCESSING

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up. They ride a chain-driven slat conveyor to the spiral conveyor. Here, a star-wheel feeder picks each bottle off, rotates it half a turn, and spots it between vertical rods on spiral conveyor tube. A variable-speed motor, controlled from either floor, rotates the tube. Guiding the bottles, as they are pushed around by the aforementioned vertical rods, are three $\frac{1}{2}$ " metal rods that spiral around the tube. One of these metal guides supports bottom of bottles while the other two (seen in photo B) hold the bottles in.

On the floor below, the still upright bottles move onto another slat conveyor which conducts them to the labeling machine (see photo C).

Tube itself is 7" in diameter, and overall height of entire unit is 18'. A 2" drive shaft, powered by $\frac{1}{3}$ hp motor, rotates conveyor at 30 rpm.

Results: Increased speed-potential of labeling and other units in Alka-Seltzer packaging line are now more fully realized. Spiral tube conveyor handles $1\frac{3}{8} \times 5\frac{3}{4}$ " bottles at rate of 150/min; rated capacity is 200/min. Any breakage and jams that occurred with previous belt conveyor are completely eliminated.

Bottles are taken upright from filler and capper and delivered same way to labeler. Vertical flight conveyor saves space (occupies only $1\frac{1}{2}$ sq ft); former belt conveyor angled from upper to lower floor with resulting dead space underneath.

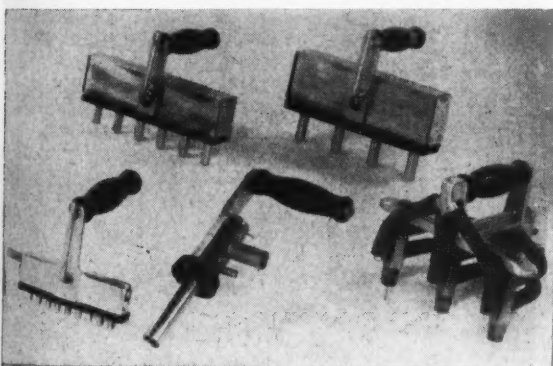
(Information courtesy of E. W. Buschman Co., Dept. CP, Clifton & Spring Grove Aves., Cincinnati 32, Ohio . . . or for more information check CP 1933 on handy form, pages 2 and 3.)

Multiple-spout heads up output of portable vacuum filler

Uses: Multiple-spout filling heads for portable vacuum filling machines.

Features: In many cases, use of these heads with the portable type of filling machine will allow hourly outputs almost equal to that of larger, more expensive machines.

Description: Available are three, four, six, and nine spout heads, and special individual gallon spouts (also suitable for halves). Two of the latter heads are used per



Several types of multiple-spout heads for portable fillers

machine, thus providing large hourly output with ease. Up to 350 gpm can be filled with these heads.

Solid-block heads having up to nine spouts are used in conjunction with small vials and odd-shaped bottles. Filling can be done in trays or right in the shipping cartons.

(Produced by Scientific Filter Co., Dept. CP, 57 Rose St., New York, N. Y. . . . or for more information check CP 1934 on handy form, pages 2 and 3.)

What goes into **BAGPAK** service to make it so dependable?

MATERIALS

Pulp wood from I.P.'s own woodlands, converted into kraft at I.P.'s own paper mills, and made into bags in I.P.'s own bag plants. Practically everything that goes into the manufacture of a Bagpak bag is furnished by the facilities of International Paper.

"you can bank on Bagpak!"

EXPERIENCE

Bagpak has been manufacturing multiwall paper bags since 1928 — makes all kinds of multiwalls, in basis weights to meet any strength required, in a complete size range, without printing or with "non-smear" printing up to four colors.

"you can bank on Bagpak!"

DEPENDABLE DELIVERY

Five different I.P. Mills supply bag kraft — not only Natural but also Colored Kraft Paper, as well as Polyethylene Liners, Asphalt Laminated Kraft and Wet Strength Paper. Each bag mill is located on two or more different railroads. Two traffic departments assure prompt delivery.

"you can bank on Bagpak!"

COMPLETE SERVICE

for heavy duty multiwall bags: — bags, bag closing materials, car liner, palletized shipments when required, packaging machines and scales — all from one source of supply! Staffs of experts help you with bag designs and packaging problems.

"you can bank on Bagpak!"

All these go into the business of providing you with a dependable supply of multiwall paper bags. For the answer to any particular multiwall bag problem, write to:

Dept. P-1, BAGPAK DIVISION, International Paper Company, 220 East 42nd Street, New York 17.

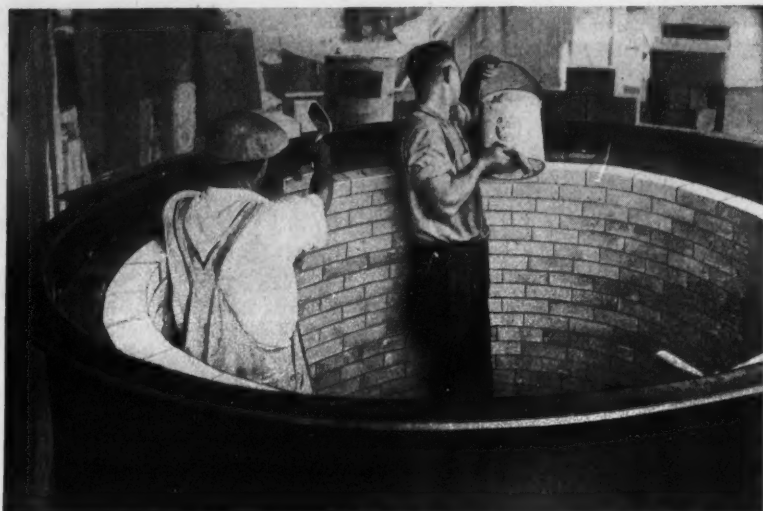


International Paper COMPANY

BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston
Chicago • Cleveland • Denver • Los Angeles • New Orleans • Philadelphia
Pittsburgh • St. Louis • San Francisco • IN CANADA: The Continental Paper
Products, Ltd., Montreal, Ottawa, Toronto

BAGPAK DIVISION

When inquiring check CP 1935 on handy form, pgs. 2-3

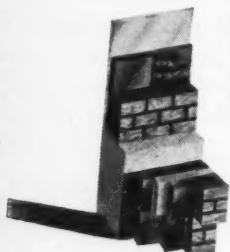


Building a wall against CORROSION... with ATLAS LININGS

The steel vessel being lined above is to be used in the production of a corrosive salt... it will hold sulfuric acid at high temperatures and give good service indefinitely.

As the basic lining for this application, ATLAS recommends *Atlstavon*... a tough, durable, dense and homogeneous sheet that gives superior service as a lining material. *Atlstavon* has another advantage of permanence that overcomes the pitfall of many chemically inert materials: By ATLAS techniques, *Atlstavon* can be permanently and positively bonded to steel. In *Atlstavon*, you have a permanent investment in a lining that will give broad chemical resistance and not separate from the member it is protecting.

Above, acid-proof brick sheathing is also being installed with ATLAS corrosion-proof cement. Sheathing protects the lining from excessive heat, abrasion or accidental damage. It's an extra preventive measure... but it's well to know that every aspect is considered by ATLAS. Nothing is overlooked to assure the long-term success of your installation.



ATLSTAVON FOR STEEL VESSELS is available in two compositions which together provide chemical resistance over an extremely wide range of corrosives. Used with or without brick sheathing.

ATLSTISEAL FOR CONCRETE TANKS consists of a primer, membrane layers, and a reinforcing layer of ATLAS products with the added protection of acid-proof brick and cement.

INFORMATIVE DATA on ATLAS linings for steel or concrete vessels is available in Bulletin 4-2. Send for your copy.

ATLAS PRODUCTS STAND
...between your process
and corrosion

ATLAS
MINERAL
PRODUCTS COMPANY

MERTZTOWN
PENNSYLVANIA

HOUSTON 1, TEXAS

Corrosion-proof: Cements—Coatings—Vessel Linings

When inquiring check CP 1936 on handy form, pgs. 2-3

PACKAGING

**Strength, protection combined
when shipping products
in multi-wall bags...**

single or laminated sheets of regular or wet-strength are used

Uses: As strong, easy-to-handle containers for shipment of numerous chemicals, mineral concentrates, and granulated products.

Features: Tough, resilient quality of the bag is due to single or laminated sheets, from two to six plies, held firmly with an adhesive. Bags are easy to stack, and are economical and satisfactory as containers for products formerly shipped in burlap and textile bags, wooden barrels, fiber drums, and cartons. Protection for moisture-sensitive products may be obtained by incorporating wax-impregnated, asphalt-laminated or polyethylene coated plies or by an inserted polyethylene liner.

Description: Bags can be made in any size up to 36" wide, with a maximum of 44" in some applications.

New high-speed, four-color printing equipment has been installed to provide any type of imprinting on a quantity basis. Company also makes a polyethylene liner that meets government standards for products requiring special protection in shipping and storage.

(Tufpak is a product of National Waterproof Papers, Inc., Dept. CP, Front & Beckett Sts., Camden 3, N. J. ... or for more information check CP 1937 on handy form, pages 2 and 3.)

**Design improvements
make impact meter
easier to read...**

stylus mounting now gives greater movement and legibility

Uses: Impact recorder is designed to be placed in packages to be shipped. It furnishes a 28-day record of shocks which the package receives.

Features: Changes in the support mounting for the recording stylus have resulted in greater freedom of movement of these stylus and a more positive mark on the record paper.

Description: These are the essential changes which have been made in the 1952 Impact-O-Graph: strong, light-weight plastic case, improved mounting bracket, and a non-slip drive which rigidly controls the one-inch-per-hour record paper rate.

Small (see photo) recorder has a battery-powered motor which drives the chart for a minimum of 28 days. Placed in a package being shipped,

MEN SCARCE?

2

BIN-DICATORS

OFTEN
RELEASE
**ONE
MAN**

FOR OTHER WORK



**BIN-FLO
AERATOR
UNITS
KEEP
BULK
MATERIALS
MOVING**

BIN-DICATORS indicate level of materials in bins, silos, hoppers, chutes, etc., and report overfeed, choking, underfeed, almost full, almost empty, etc., to central control point by visible or audible signals. Also, automatically control operation of machinery as indicated by any of above conditions.

Always on the job—and doing it. Low first cost; negligible operating cost. Used on over 100 materials. Fully guaranteed. Write for free book.

BIN-FLO Aerator Units in bins, hoppers, chutes use low pressure air to keep materials moving at points of restricted flow.

**NEW
20 PAGE
BOOK
FREE**

THE BIN-DICATOR CO.

13946-D Kercheval • Detroit 15, Mich.

When inquiring check CP 1938 on handy form, pgs. 2-3

the
last
word
in
feeders...



— for dry materials... sea coal, trap rock, Vinylite, hydrated lime, zinc hydrosulphite, activated carbon — and liquids... acids, chemical solutions, and suspensions. For Bulletins and complete information, address Omega Machine Company (Division of Builders Iron Foundry), Providence 1, R. I.

omega machine co.

When inquiring check CP 1939 on handy form, pgs. 2-3

CHEMICAL PROCESSING



All shocks for 28 days

the Impact-O-Graph records all the jolts and shocks which the package receives during shipment. Each of the three recording styli corresponds to one dimension. When records of all three are viewed collectively, shocks from any direction are shown.

Manufacturer reports that many firms are now using the instrument in package pre-testing. By checking packages under test conditions they can arrive at package designs which afford sufficient protection without the extra cost of "over-packaging."

(Impact-O-Graph Corporation, Dept. CP, 1900 Euclid Ave., Cleveland 15, Ohio is the maker . . . or for more information check CP 1940 on handy form, pages 2 and 3.)

Cuts shipping costs of powders, soaps or abrasives . . .

specially treated, molded paper is without seams or joints

Uses: An expendable, substantial, container for shipping or display.

Features: Made of specially treated paper pulp, containers have no joints or seams, and are fitted with leak-proof "friction-fit" covers. They have been found suitable for shipping granulated substances, powders, soaps, abrasives, some liquids, semi-liquids.

Description: Molded to shape, containers are available in nine sizes from one pint to 5 gal capacity. Standard color is white.

(Product of Keiding Paper Products Co., Dept. CP, 3048 N. 34th St., Milwaukee 10, Wis. . . . or for more information check CP 1941 on handy form, pages 2 and 3.)

For more information on product at right, specify CP 1942 . . . see information request blank between pages 2-3.



FROM FIRST COST TO LAST

LESS PACKAGING EXPENSE

WITH
CHEM-PAK

DEPENDABLE SIFT-PROOF PAPER BAGS
SPECIALLY ADAPTED FOR SHELF-UNIT
PACKAGING OF CHEMICAL PRODUCTS

CHEM-PAK

BAG TYPES FOR MANY NEEDS



Heavy-duty construction, wax-treated or asphalted paper when desirable. Paper combinations to protect against moisture, odor, grease, vapor, etc. Excellent printing characteristics. Cut so paste can't ease. Protective "shingle" construction, no open area through which contents can sift.

CHEM-PAK STANDARD

Made with the original and justly famous Union sift-proof feature.



Thermoplastic applied to inside top portion of bag. Closure can be made on standard heat-sealing equipment. Paper combinations to suit the individual protective qualities desired. Excellent printing surface for shelf display packages. Bottom has famous Union sift-proof "shingle" construction.

CHEM-PAK UNISEAL

Standard CHEM-PAK with a thermoplastic application to effect a heat sealed closure.



Can be closed on standard heat-sealing equipment. Heat-sealing top guarantees a sift-proof closure. Unithene, chemically inert lining for packing Class "B" poisons, corrosive and hygroscopic chemicals. Bottom squares out flat for easier packaging, better shelf display. Bottom both heat sealed and adhesive reinforced.

CHEM-PAK UNITHENE*

Special Duplex paper combination. Inner ply — Unithene.*

*UNITHENE—Union high-test kraft with control-coated polyethylene.

CHEM-PAK

SIFT-PROOF PAPER BAGS FOR CHEMICAL PRODUCTS

UNION BAG & PAPER CORPORATION

NEW YORK: WOOLWORTH BUILDING • CHICAGO: DAILY NEWS BUILDING

CHEM-PAK BAGS FOR FERTILIZERS—INSECTICIDES, FUNGICIDES, DUSTING POWDERS—PLANT FOODS—WALL SIZE—PASTE FLOUR—PATCHING PLASTER—PREPARED CEMENT—PLASTER OF PARIS—PHARMACEUTICAL CHEMICALS—DYES AND PIGMENTS—SANITARY CHEMICALS—POWDER SHAMPOOS—CHLORINE COMPOUNDS AND ALKALIDES—CAULKING, SEALING, WHITING AND FILLING COMPOUNDS—AND OTHER DRY CHEMICALS WITH COMPARABLE PACKAGING REQUIREMENTS

VERSATILE CHEM-PAK bags are certified sift-proof. They meet requirements of the Interstate Commerce Commission — are safe even for Class "B" poisons. You'll find them an excellent solution for most packaging problems where dry chemicals are put up in units of twenty-five lbs. or less.

CHEM-PAKS are made in a wide range of paper combinations and closures, suitable for almost any dry chemical sold in small retail units. Their protective qualities compare favorably with more expensive containers. They are easy to handle, inexpensive to pack and ship, colorfully suited to retail display.

Measure your present package against CHEM-PAK. You can make a quick, accurate appraisal with Union's new Chemical Package Evaluator. This handy guide is yours for the asking. The coupon brings it.

UNION'S MODERNIZED PLANT AT HUDSON FALLS, N. Y.
BILLION-BAG SPECIALTY PACKAGING HEADQUARTERS



NEW! Mail this coupon for practical CHEMICAL PACKAGE EVALUATOR. No charge or obligation.

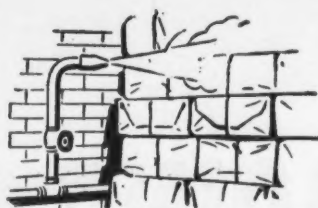
Union Bag & Paper Corporation
Woolworth Building, New York 7 CP 252
Please send me the new Chemical Package Evaluator.

Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____
Products _____

NO. 1 OF A SERIES ON HOW TO Stretch a MULTIWALL Paper Bag

It is just good business to get the best possible use from your multiwalls. Here is one way to do it . . .

PROPER STORAGE OF EMPTY BAGS



1. Let steam escape in bag storage room to keep air and bags humid. Keep a humidity indicator in the storage room and check it frequently. Always leave aisles or spaces between stacks of bags to allow circulation.



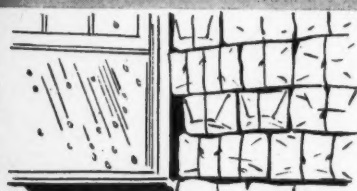
2. Store bags on dunnage, away from floor, and keep floor wet so moisture can be absorbed into air. A relative humidity of about 50% at warm temperature is best.



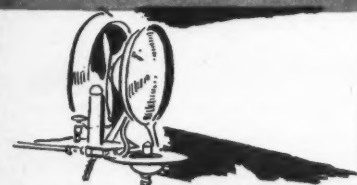
3. Drill small "needle" holes in horizontal water pipes. Hang cloths over holes. Air absorbs moisture from wet cloths.



4. Hang wet cloths over edge of water barrels. Cloth absorbs water and air absorbs moisture from cloth. Keep barrels well filled.



5. Open windows on damp or rainy day. Damp outside air will circulate in the bag storage room. Multiwalls are strongest when moisture content of the paper is about 6 or 7%.



6. Use commercial humidifying apparatus. Many types of commercial humidifiers are available with capacities to suit individual requirements.

When inquiring check CP 1943 on handy form, pgs. 2-3

PACKAGING

Small, compact machine counts up to 600 per min . . .

four-digit electric counter can operate on as few as 6v

A small, compact, reset type electric counter capable of registering electric impulses at speed up to 600 per min, has been announced.

Furnished for 6, 12, 24, 48, or 115v DC, or 60 cps AC, the instrument measures only 1 23/32" long, 1 9/16" wide, and 2 13/16" high. It may be actuated by any suitable switch, relay or photo-electric unit, and is completely enclosed in a metal case with a plastic window. One complete turn of the reset knob resets all numbers to zero. Is also available with brackets for panel mounting.

(Developed by Production Instrument Co., Dept. CP, 704-30 W. Jackson Blvd., Chicago 6, Ill. . . or for more information check CP 1944 on handy form, pages 2 and 3.)

Drums, barrels, crates, skids, bins can be stored easily

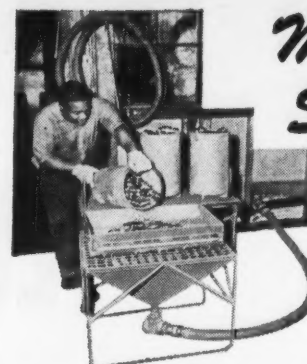
Racks for drums, barrels, crates, bins, skids, and pallets are described in 11-page bulletin which also illustrates some typical installations.

Some of the features of the metal racks as listed in the bulletin are: 1) space saving, 2) reduce handling costs, 3) cut down accidents by safe storage, 4) all stock is visible and easily accessible, 5) avoids breakage, leakage and crushing, 6) makes it easier to take inventory.

Barrel racks include selective drain racks which permit removal of the contents of the barrel or drum without removing it from the rack. Skid and pallet racks, built with a safety margin of load-carrying strength, are also adapted to storing crates, cartons and odd shapes.

Bul 5221 is issued by Barrett-Cravens Co., Dept. CP, 4609 S. Western Blvd., Chicago 9, Ill. When inquiring specify CP 1945 on handy form, pgs. 2-3.

Don't miss the PROCESSING AND ENGINEERING DATA section on pages 204, 206, 208, and 210 of this issue.



Mechanical Separation WITH SPENCER VACUUM

Spencer Vacuum picks up, conveys, separates and deposits all kinds of materials. With these functions, all provided by one machine, engineers are designing ingenious, automatic vacuum applications. A simple form of separation is shown above. Cans of heat treated metal parts are dumped over a vacuum screen. The bone ash is taken to a Spencer Separator and is ready to use again. In a chemical plant, Spencer elevates powders to the roof—and dropped from floor to floor over vibrating screens.

Spencer Industrial Vacuum equipment is made in sizes from 1 1/2 to 100 HP. Ask for Bulletin No. 125D.

THE SPENCER TURBINE COMPANY • HARTFORD 6, CONNECTICUT

SPENCER
HARTFORD

439-N

When inquiring check CP 1946 on handy form, pgs. 2-3

SPO AIR VIBRATORS

BINS HOPPERS	CHUTES	CONVEYORS
PACKAGING TABLES	CONCRETE FORMS	MOLDING MACHINES
BENCHES SCREENS	FATIGUE TESTING	

Specify SPO dependable, low-cost air vibrators for all materials handling and foundry applications.

SPO vibrators feature full power starting, hammer-like blows, high-speed operation, long trouble-free service life.

Blow for blow, you can't beat SPO air vibrators! For information on complete line, write today for Bulletin 50.

SPO INCORPORATED

6531 Grand Division Ave. • Cleveland 25, Ohio

When inquiring check CP 1947 on handy form, pgs. 2-3

PACKAGING

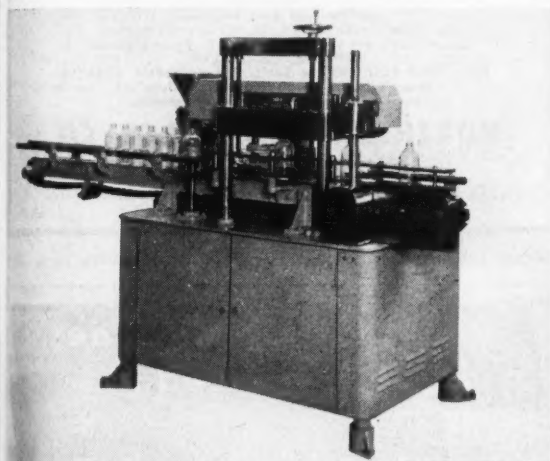
Labels up to 75 containers per minute with ease and accuracy . . .

capacity ranges from fractional ounces to gallons or postage stamp size to 5 x 6"

Uses: For affixing paper or metal foil labels to containers of cardboard, tin, plastic, metal, or glass.

Features: Up to 75 containers labeled per min, ranging in size from postage stamp dimensions to 5 x 6" and with capacity range from fractional ounces to gallons. If no container enters delivery star, vacuum automatically cuts out. Labelers can be supplied in duplex style to handle 150 containers per min.

Description: Machine is so designed that unskilled operator can make necessary adjustments for varying container sizes. Special vertical adjustment control accommodates containers of any height and also prevents round containers from spinning, thus assuring more accurate registration. Label magazine consists of a universal frame that holds a filled, fabricated cartridge



Has special adjustment to prevent round containers from spinning

to accommodate the size and shape of the label. Cartridges may be filled beforehand so that they are readily available for renewing supply when the one in the machine becomes empty. Glue is applied away from the edges which spreads evenly when the wipers come into contact with the label yet no glue will ooze beyond the edges, manufacturer reports.

Machine has centralized lubrication, adjustable guide rails, table-top chain conveyor, variable speed control, simple dismantling of glue pot for cleaning. Working parts are enclosed in a cabinet including a 3/4 hp motor and vacuum pump. Intake and discharge conveyor is 7' 6". Labeler occupies floor space approximately 3' x 7' 6". Models are also available for front and back labeling.

(Product of the MRM Company, Inc., Dept. CP, 191 Berry St., Brooklyn 11, N. Y. . . or for more information check CP 1948 on handy form, pages 2 and 3.)

Did you see the announcement CHEMICAL PROCESSING is making? . . . Be sure to see it at the foot of page 49.



Sturdy Gaylord Boxes Deliver Your Product Safe and Sound

Manufacturers who know the sales value and economy of safer arrival of their products prefer Gaylord Boxes.

Tough enough to take the roughest kind of handling, these protective containers stand between your product and possible damage in shipping.

Ask the Gaylord Sales and Service office nearest you for proof of the advantages of Gaylord Boxes engineered to your specific needs.

It's the unseen quality that gives you the extra margin of safety in



GAYLORD CONTAINER CORPORATION

General Offices: ST. LOUIS

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle • Indianapolis • Houston • Los Angeles • Oakland • Minneapolis • Detroit • Columbus • Fort Worth • Tampa • Dallas • Cincinnati • Des Moines • Oklahoma City • Portland • Greenville • St. Louis • San Antonio • Memphis • Kansas City • Bogalusa • Chattanooga • Milwaukee • Weslaco • New Haven • Amarillo • Appleton • Hickory • Greensboro • Sumter • Jackson • Miami • Omaha • Mobile • Philadelphia • Little Rock • Charlotte • Cleveland

Introducing a New, Rugged All-Crinkled Bag **TUFPAK**



Here's a really tough multi-wall bag that will protect your product and save you money. Consider these TUFPAK features:

- 2 to 6 plies extra-strong crinkled kraft paper.
- Made to order in any combination of plain . . . wet-strength . . . wax-treated . . . waterproof . . . mesh-reinforced . . . or polyethylene coated plies. Polyethylene liner also available.
- The *only* all-crinkled bag supplied in 10" to 44" widths.
- Resilient and flexible—absorbs shock, rough handling.
- Creped surface takes slip and slide out of stacking.

TUFPAK—the ideal shipping container for chemicals, foods; powdered, granulated, or crushed products.

NATIONAL WATERPROOF PAPERS, INC.

Manufacturers of Protective Papers,
Liners and Bags Since 1903

106 Beckett Street
Camden 3, New Jersey

Send coupon below
for sample bag
and complete information

National Waterproof Papers, Inc.
106 Beckett St., Camden 3, N. J.

Please send me a sample bag and full details on TUFPAK as indicated below:
Product to be packed
Size of Bag Wt. of Contents

Company

Address

Individual (Please Print)



REG. PEND.

When inquiring check CP 1949 on handy form, pgs. 2-3

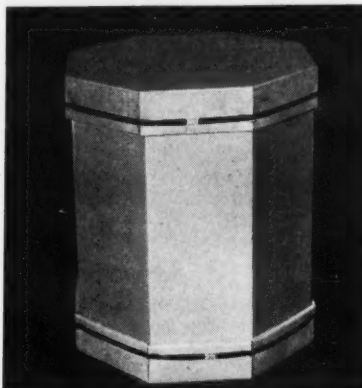
PACKAGING

**Designed for product protection,
fiber drums help reduce
shipping costs . . .**

light and sturdy, containers have
no nails or wires

Uses: As a shipping container for such items as granular or powdered chemicals, soap chips, small plastic parts, paper or fabric rolls, or most any other product which requires special protection against rough handling.

Features: Lightweight fiberboard drums have no nails or wires. They are shipped knocked-down flat, but are easily assembled for ready use. Drums



Drum design gives rigid protection
to products in shipment

have several designs: hexagonal, octagonal, rectangular or square, which make for unusual rigidity.

Description: Custom-made for individual requirements, drums have four thicknesses of overlapping corrugated board where lid joins the body of the box to provide extra strength and to create a convenient hand grip for lifting. Dispensing top allows opening of the drum to remove contents as needed without breaking the metal band around the lid.

Lids and bottoms are identical units with wide flaps which cannot be pulled apart after steel strapping is applied. Manufacturer reports that a typical drum will support a ton of static weight.

(Product of the Gaylord Container Corp., Dept. CP, 111 N. Fourth St., St. Louis 2, Mo. . . or for more information check CP 1950 on handy form, pages 2 and 3.)

Bulk shaken down in minutes with vibrating packer

Printed in two colors, an eight-page catalog details various packing devices employing electrically powered vibrators. Test results plotted in the publication show that density of white lead was increased from 90 to 130

Ship Chemicals? Use **NORCO** Barrels and Kegs



NORCO PACKAGES

Have definite advantages as containers for many hard-to-hold liquids, foods and chemical products. Micro-crystalline and other linings are available.

- Tight grained and non-porous.
- They are "stable"—minimum of shrinkage or swelling.
- They stand up unusually well in storage.
- Low tare weight.

Typical Usages: Phosphoric, acetic, sodium acetate and acid solutions.

In these sizes: 5, 10, 15, 30 and 50 gallon.

Most sizes are available in I.C.C. Specifications.

Write for Unit NC 3 CP.

PUT YOUR PRODUCT IN SANITARY WOODEN BARRELS
Manufacturers of the largest variety of
wooden barrels and kegs in America.

NORTHERN COOPERAGE CO.

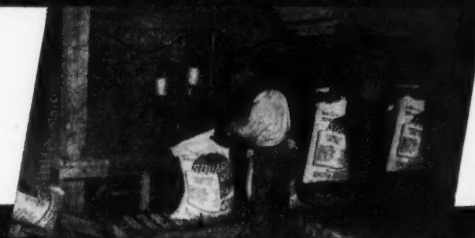
551 Concord St. — St. Paul 7, Minn.
Riverview 4900

Division of Greif Bros. Cooperage Corp.

124

When inquiring check CP 1951 on handy form, pgs. 2-3

Bag Closing Machines for Every Need . . .



...from UNION SPECIAL'S
Complete Line! . . .

For lower production costs . . . stronger, neater closures . . . ability to get out rush orders in a hurry, you can't bear Union Special Bag Closing Machines! In the Union Special line, it's easy to find the right unit to meet your particular requirements: 25 different styles of machines! 10 styles of sewing heads! For any kind and size of bag—paper, cotton, burlap, or jute. ASK FOR ILLUSTRATED BULLETIN No. 200.



SEND FOR THIS
ILLUSTRATED BULLETIN!

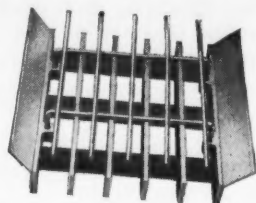
Union Special

MACHINE COMPANY
442 North Franklin St.
Chicago 10, Illinois

When inquiring check CP 1952 on handy form, pgs. 2-3

CHEMICAL PROCESSING

you can't drop a nail through this grate



Climb up high and drop a steel nail on this magnetic grate. Or throw nail as hard as you can against it. The nail simply can't get through.

It's obvious that the nail or other iron or steel piece will first strike a grid wire or a grate bar. That will check the momentum. Then the object will be caught with a strong magnetic grip.

The Bauer Magnetic Grate is laid on a frame in a hopper throat or floor opening to catch all steel and iron inclusions in flowable materials—grain, nuts, seeds, fruits, coffee, tea, spices, sand, clay, lime, chemicals. The grates work well in liquids, too.

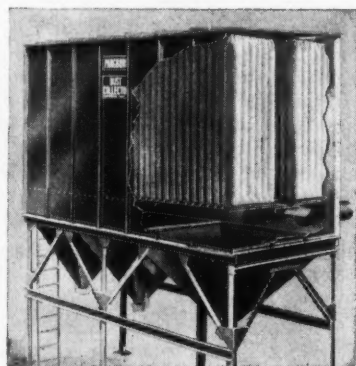
Ask for Bulletin M-3-A which fully describes the magnetic grate and other Bauer Magnetic Separators.

THE BAUER BROS. CO.

1728 Sheridan Ave. • Springfield, Ohio

When inquiring check CP 1953 on handy form, pgs. 2-3

NEW! Pangborn Cloth Bag Collector



for high-efficiency, low-cost dust collection

- Adaptable to wide variety of industrial dust problems due to new bag design
- Individual bags can be inspected, removed, and replaced without tools and without disturbing other bags
- Built for trouble-free service through simplified design and use of fewer parts

THIS new Pangborn "CM" Cloth Bag Dust Collector extends the high-efficiency collection characteristics of the cloth filter to applications previously considered too costly. The Pangborn "CM" Collector is well adapted for collecting

carbon black, graphite, pigments, soap, food dusts, metal oxides, and other dusts of similar characteristics. For further information, write for Bulletin 914 to: PANGBORN CORP., 2700 Pangborn Blvd., Hagerstown, Maryland.

Look to Pangborn for the latest developments in Dust Control and Blast Cleaning Equipment

Pangborn

DUST CONTROL

stops the dust hog from stealing profits

When inquiring check CP 1954 on handy form, pgs. 2-3

APRIL, 1952

PACKAGING

pounds per cubic foot in little more than five minutes. Plots also show packer's effect on sodium bicarbonate, crushed caustic potash, and flake caustic potash.

Eleven standard models of unit packer are described in a table giving all pertinent information. In addition, these types are shown in photographs and engineering drawings. Catalog is concluded with photographs and drawings of packing tables ten to twelve feet long.

These packing tables convey while they pack. Diverse uses include molding chocolate bars and knocking clinging sand free from castings.

Cat 843 is issued by the Traylor Vibrator Division, The Jeffrey Manufacturing Co., Dept. CP, Columbus 16, Ohio. When inquiring specify CP 1955 on handy form, pages 2 and 3.

Speeds-up labeling metal, glass, and other surfaces . . .

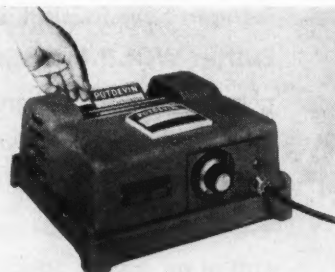
machine activates delayed tack for better adhesion

Uses: For activating pre-coated Thermo-plastic labels to provide better adhesion to plastic, metal, fabric, glass packages.

Features: Activates pre-coated labels quickly, evenly, and delivers them to the operator for application on the product. Correct heat is maintained by thermostatic control.

Description: Activator is motor-driven, and has but few moving parts. Maintenance is minimized.

Constructed of heavy-duty metal finished in gray crackle, its small



Motor-driven activator provides better label adhesion; requires little maintenance

size makes it convenient for moving to any desired location. Device is made in two sizes, 6 and 12" widths, for 110v, 60c, AC.

(Product of the Potdevin Machine Co., Dept. CP, 1285 38th St., Brooklyn, N. Y. . . or for more information check CP 1956 on handy form, pages 2 and 3.)

NEWARK "End-Shāk" TESTING SIEVE SHAKER



Motion is important in making sizing tests. Conforms to recommendations for the motion to be used when making hand tests, issued by the Bureau of Standards.

Here, in the Newark "End-Shāk" unit, you get proper sustained hand motion mechanically. You get the best motion without being subjected to any human variation or weakness. This sturdy testing machine holds up to 7 full height sieves or up to 13 half height sieves. It is designed for 8 inch diameter sieves. Standard 1/2 HP., 110-220 volt 60 cycle, 1750 rpm motor supplied. Special motor to order.

We'll be glad to send you prices and descriptive literature. And if you will outline your testing requirements we'll be glad to suggest the proper sieve series to use.

NEWARK
for ACCURACY

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Philadelphia 3, Penna. San Francisco, Calif. Chicago, Ill. New Orleans, La. Los Angeles, Calif. Houston, Texas.
1211 Widener Bldg. 3100 19th St. 20 N. Wacker Dr. 520 Maritime Bldg. 1400 So. Alameda St. P. O. Box 1970

When inquiring check CP 1957 on handy form, pgs. 2-3

PROTECTION



Fulton BAG & COTTON MILLS

Atlanta • St. Louis • Dallas • Denver • Kansas City, Kans.
New Orleans • Los Angeles • Minneapolis • New York City

***built
in***

Fulton's W.P.P.L.

(Waterproof Paper Lined)

Bags provide built in protection for your product.

An inner lining of tough crinkled Kraft paper, or plastic, is laminated with special adhesives to cotton or burlap...safely...surely...sealing in your product against the damaging effects of moisture, odors, or other outside influences. Many manufacturers have found that **Fulton W.P.P.L. Bags** give them all the advantages of more expensive rigid containers, with the economy and other savings of an easy-to-handle textile bag. For full details, write your nearest **Fulton factory today!**

When inquiring check CP 1958 on handy form, pgs. 2-3

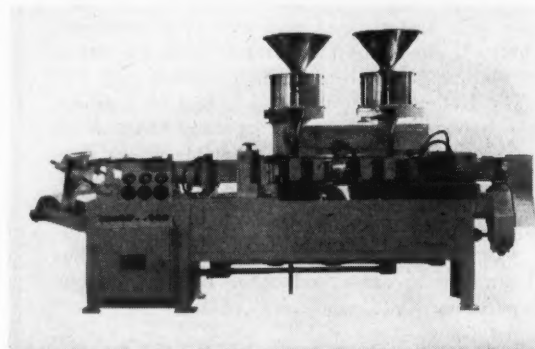
PACKAGING

Makes, fills, and seals packages at rate of 180 per minute using twin hoppers . . .

machine can also be converted to single filling; are adaptable to powdered or liquid products

Uses: For making, filling, sealing packages containing powdered, or liquid products or a number of "hard goods" of small size.

Features: Handles 2 x 2" to 3 x 3" at rate up to 180 units per minute. Speed is attained through use of twin hoppers and a double forming and filling system. Ma-



Packaging is speeded with twin hoppers and a double forming and filling system

chine can also be converted to single filling when desired, providing minimum package size of 2 x 2" to a maximum of 4 3/4 x 6 1/4" at speeds to 70 per minute.

Description: Operational sequence is such that a large bag is filled from the first hopper and a sealing iron effects a seal halfway up the bag. Top half is then filled from the second hopper and a top seal is made. After top seal is completed, cutting knives shear the bags apart at the middle seal and two completed packages are discharged at end of the machine. Speed is thus double the cycling speed. Machines are fitted with fillers and sequences of operation best suited to customer's needs.

(Product of the Bartelt Engineering Company, Dept. CP, Rockford, Ill. . . . or for more information check CP 1959 on handy form, pages 2 and 3.)

Toughness is singular feature through processing of corrugated boxes . . .

improved strength and cushioning for stacking make containers literally tearproof

Uses: As durable, economical means of shipping heavy products such as cans and metal goods in cartons or boxes.

Features: Reinforced flapscores and other parts of the cartons increases stacking strength and cushioning qualities to compare with conventional cartons of higher test board, manufacturer reports.

Description: Flapscores of "Tufedge" corrugated boxes are reinforced to such an extent that they are virtually tear-proof. Boxes reported to withstand 2 1/2 times the number of drum falls required to produce failure in conventional containers of the same test corrugation.

In "Tufwall" shipping containers, stacking strength

CHEMICAL PROCESSING

and cushioning are incorporated into the cartons only where needed, employing a double-wall principle. Reinforcement can be provided over the entire depth of box or extend 1½" beyond the flapscore. Manufacturer reports that a loaded "Tufwall" box withstood a 1000-lb top-to-bottom compression load without bulging.

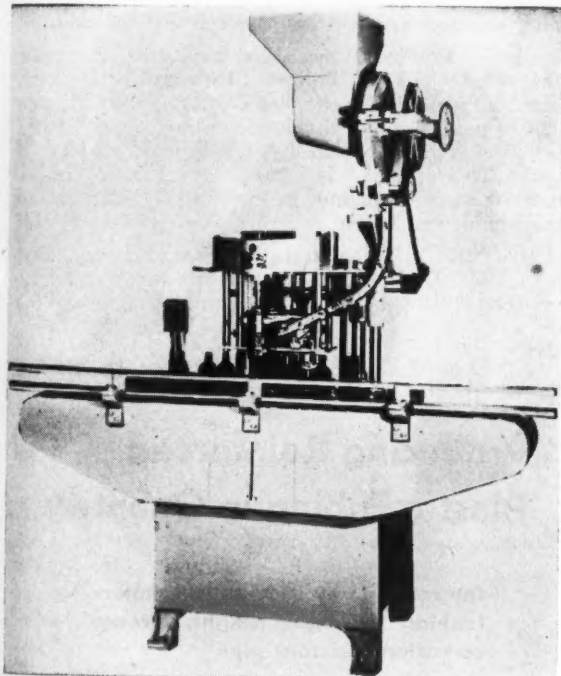
(Product of Shelton Manufacturing Co., Inc., Dept. CP, 591 Ferry St., Newark 5, N. J. . . . or for more information check CP 1960 on handy form, pages 2 and 3.)

All screw-cap varieties are handled by redesigned capping machine . . .

revolving drum in hopper keeps caps moving so they won't stick together

Owing to the large variety and shapes of screw-caps on the market, both molded and metallic, the cap feeding hopper of the "Tite-Cap" fully automatic screw-capper has been redesigned so it can handle all caps without making adjustments or changes. The new hopper is equipped with a revolving drum which keeps the caps in gentle motion and thus prevents them from sticking together. Discharge is via chute at hopper bottom instead of from the top as was previously the case.

If jamming occurs in hopper, drive is disengaged to prevent injury to machine parts or breakage of molded caps. Chucks for tightening the caps have also been redesigned to enable them to handle the many varieties of caps. Special chuck liners are furnished for this purpose so it is not



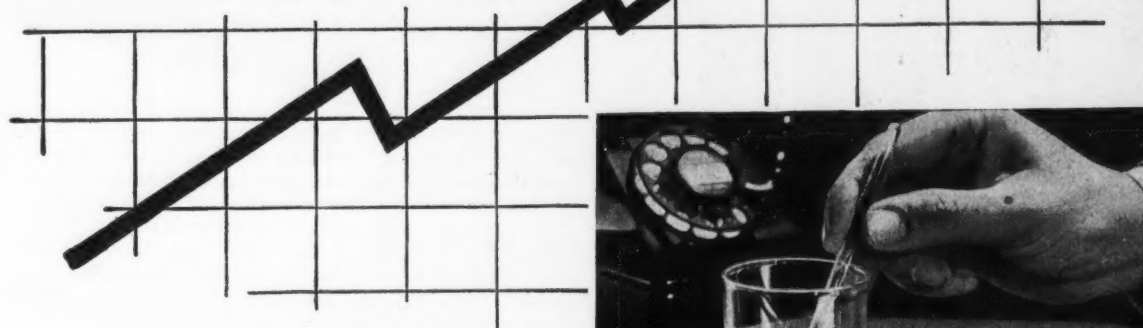
Screw-capping machine handles all varieties of caps

necessary to purchase completely new chucks. All chucks are equipped with adjustable tension device.

Speed of this single-head automatic screw-capping machine goes up to sixty containers per minute.

(Manufacturer is Tite-Cap Machine Co., Inc., Dept. CP, 57 Rose St., New York 38, N. Y. . . . or for more information check CP 1961 on handy form, pages 2 and 3.)

Why are large quantity GLUE USERS turning to Aqua-Flakes?



**. . . make glue
at your desk
and see!**

®

AQUA-FLAKES

start as a complete liquid adhesive. Ready-for-use.

We remove the water by a special process. When you replace it, all of the original adhesive qualities return.

— better than liquid adhesives!

AQUA-FLAKES, a dehydrated liquid dextrin adhesive, save up to 60%. There's no water to pay for. No freezing problems in use or in storage.

— better than old-fashioned cold water solubles!

AQUA-FLAKES take the guesswork out of preparation. Eliminate "lumpy" mixtures . . . complicated, time-wasting formulas.

— better than "cook-ups"!

AQUA-FLAKES are prepared in minutes not hours. No heating or cooling necessary. No costly equipment. Just add to water for a



quality adhesive with lightning tack . . . beautiful filming properties.

Proof? Make a batch at your desk! We'll supply an AQUA-FLAKES sample . . . a stirring rod . . . and a handy measuring glass — if you'll mail the coupon!

Viscomat equipment is designed to prepare AQUA-FLAKES solutions — automatically — in any quantity, to any viscosity. For fabricating, sealing, and adhering paper containers and other paper products.

If you are a large user of industrial adhesives, you should be interested in AQUA-FLAKES.



270 Madison Ave., NEW YORK 16; 3641 So. Wash-
tenaw Ave., CHICAGO 32; 735 Battery St., SAN
FRANCISCO 11; and other principal cities. In
CANADA: National Adhesives (Canada) Ltd.,
TORONTO and MONTREAL.

I'D LIKE TO SEE whether AQUA-FLAKES are easier to prepare, more economical than my present adhesives.

- ☐ Please send an AQUA-FLAKES test kit
☐ Please have a National representative call on

Mr. _____

Company _____

Address _____

City _____ Zone _____ State _____

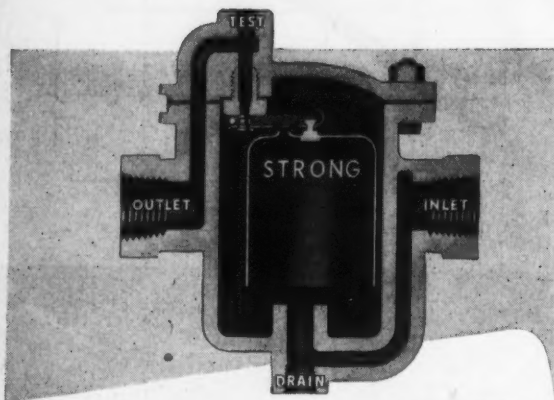
When inquiring check CP 1962 on handy form, pgs. 2-3

CP

Get this **SMALL TRAP**

With

BIG TRAP
quality features!



- Renewable seat—easily removed for servicing.
- Strong's patented, wear-resistant Anum-Metl valve and seat—guaranteed leak-proof for one year. Scientifically designed Hi-Cap orifice gives greater capacity.
- Oversized ports—increased capacity.
- Horizontal inline connections—simplifies piping.
- Stainless 18-8 high ratio leverage.
- Large gasket area.
- Seamless, deep drawn, stainless 18-8 bucket—no welds.
- Bottom drain or inlet connection.

Available for pressures from 0 to 150 p.s.i., the Strong* No. 070 fits all standard trap applications. Built especially for use on laundry, restaurant and hospital equipment and in industry wherever small drainage is a problem.

As with all Strong Semi-Steel Traps, the 070 is guaranteed against defects in material and workmanship for one year. Write today for Catalog 68-J.

*T. M. Reg. U. S. Pat. Off.

STRONG, CARLISLE & HAMMOND COMPANY



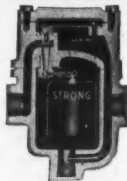
1392 WEST 3rd Street
Cleveland 13, Ohio

†ANUM-METL
Reg. Trade Mark

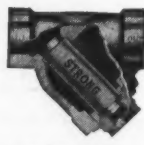
OTHER STRONG STEAM SPECIALTIES



Reducing Valve



Blast Trap



"SY" Strainer

STRONG

When inquiring check CP 1963 on handy form, pgs. 2-3

Page 154

Utilize Unique Plastic Joint in Installing Overhead Clay Pipe Lines

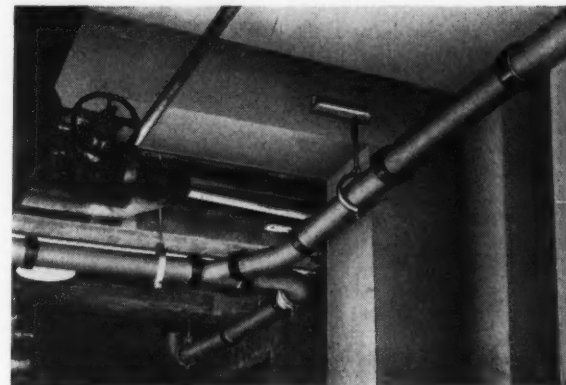
Application story tells advantages of item described in last month's Chemical Processing

PPOINTING up the unique features and advantages of the "Screw-Seal" joint and ceramic pipe was the recent installation of overhead clay pipe lines at The Beech Street Heating Plant of the Ohio Edison Co., Akron, Ohio. (Complete story of "Screw-Seal" carried on p. 160 of MARCH CHEMICAL PROCESSING.) The joint, which combines plastic with vitrified clay to form a leak-proof assembly, made possible rapid and easy installation of the lines, suspended from a 15 feet high ceiling.

Actual joint installation required 1½ hour, and miscellaneous work, such as arranging hangers and cementing pipe ends to the floor, consumed another 2 hours. Since no scaffolding was available at site, considerable assembly time was spent in positioning, ascending and descending ladders.

The ceramic pipe is resistant to corrosive chemicals and in this particular installation, it carries a 3% solution of sulfuric acid and an almost saturated solution of brine. Additionally, the pipe, at times, must withstand a head of 4 feet. Lines are employed to convey boiler make-up for two water softening units.

No serious problems were encountered in the installation even though various types of curves, turns, Y's and elbows were necessary. Use was made of a pressure molded type union in the form of a split flange bolted together at the sides. This device is particularly applicable to the fore-



Completed installation of overhead clay pipe lines which carry boiler make-up water for water softening units

going situations and wherever space limitations exist.

At all other locations on the Edison installation, the regular "Screw-Seal" joint was utilized. To assemble this joint, a pressure molded phenolic plastic collar is threaded over a male-threaded polyvinyl chloride casting at each end of clay pipe. Pipe to be added is turned into the collar by hand. This operation is accomplished quickly through three complete revolutions of the pipe by hand and a fourth turn with a strap wrench.

("Screw-Seal" is manufactured by The Robinson Clay Product Co., Dept. CP, Akron, Ohio . . . or for more information check CP 1964 on handy form, pages 2 and 3.)

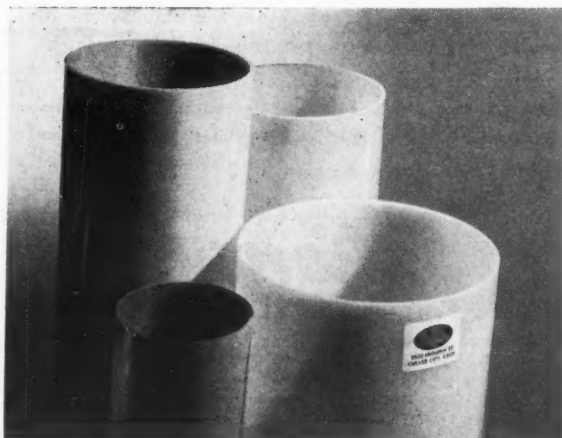
Producing Reinforced Plastic Tubing in Quantity

**Interesting to design engineers
looking for light weight, strong,
corrosion resistant pipe**

FIBERGLAS-REINFORCED plastic tubing is now being commercially produced in unlimited quantities according to a report of the Refin Company, Culver City, Calif. This should be significant to those concerning themselves with design materials and also as a substitute for materials in current critically short supply.

Refin tubing is noted for its light weight, strength, and corrosion resistance. Lightness affording portability suits

CHEMICAL PROCESSING



Refin tubing in standard sizes — 4-10" OD and wall thicknesses from 0.030"

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APRIL

it for fuel-dispensing lines. Strength makes it ideal for housings of airborne equipment. Chemical resistance extends utility for use of standpipes, vent tubes, oil gathering lines, irrigation lines, salt water piping, sanitary piping, and many more applications. Specifically, the tubing is being accepted as a substitute for copper-nickel and copper-brass piping systems.

Reflin is available in standard sizes from 4 to 10 inches (outside diameter) with wall thicknesses ranging upwards from 0.030 inches. Sizes up to 36 inches (outside diameter) are available on specification. Tensile strengths up to 35,000 and flexural strengths up to 65,000 pounds per square inch are reported. Varying with diameter and reinforcement, burst pressures range to 3000 pounds per square inch. Straight sections of 20 foot length are coupled by cemented sleeves. Temperature stability is between -60 and +230°F. Standard fittings are available to complement piping systems.

(Product of the Reflin Company, Dept. CP, 8525 Higuera, Culver City, Calif. . . . or for more information check CP 1965 on handy form, pages 2 and 3.)

Simple operation, servicing featured in Diesel unit with electric control . . .

consumes only 0.155 gal of furnace oil per kw-hr at full rated load operation

Uses: Diesel electric plant (3000w)* generates 115v, 60 cps, single-phase current.

Features: Through simplified plant design, anyone can operate and service diesel unit. Push-switch control for electric cranking, manual compression release, and an electrically heated glow plug for cold weather starting are provided. Approximately 0.155 gal of furnace oil is consumed per kw-hr at full rated load.



Diesel unit designed to produce 115v, 60 cps, single-phase current

pump, 5) five-ring aluminum alloy piston with chrome-plated top ring, 6) solid stellite insert for exhaust valve seat.

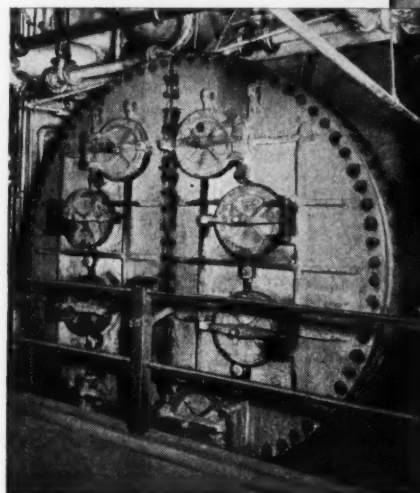
Other AC models available in single-phase produce 230v and 115/230v. A 32v battery-charging model can also be supplied.

(Diesel unit Model 3DSP-1E is produced by D. W. Onan & Sons, Inc., Dept. CP, Minneapolis 14, Minn. . . . or for more information check CP 1966 on handy form, pages 2 and 3.)

Since January 1952, CHEMICAL PROCESSING has come to you with additional departments, helping you to find and read topics of your greatest interest.

Before you SCRAP!

Condenser of the Lynn Gas & Electric Co., Lynn, Mass., which was returned to service by use of inlet-end inserts at a saving of \$30,000.



Before you scrap condenser tubes because of inlet-end leaks GET ALL THE FACTS

It sometimes happens that a combination of erosion and corrosion at the inlet ends of condenser tubes may seem to force their replacement. This is not always necessary. If the damage is confined to a small area at the inlets, and the tubes otherwise are in good condition, they can be saved by using inserts designed especially for just such circumstances. There are several makes available, none made by Revere.

In a recent case, involving a condenser of the Lynn Gas & Electric Company, Revere recommended inserts. Here are the figures: Number of tubes involved, 4,100; Replacement cost, \$35,000; Cost of inserts to cure the trouble, \$5,000; Saving, \$30,000. Repairs should enable the condenser to serve for several more years. The work was so successful that a similar job was done on another Lynn condenser containing 2,700 tubes.

Of course Revere wants to sell condenser tubes, and its other products in copper and copper-base alloys, and aluminum, but we know that fast friends and loyal customers are won by taking to heart the best interests of those with whom we deal. May we have the privilege of working with you on condenser tube matters? Send for free booklet, "Life Extension for Condenser Tubes."

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere

SEE REVERE'S "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

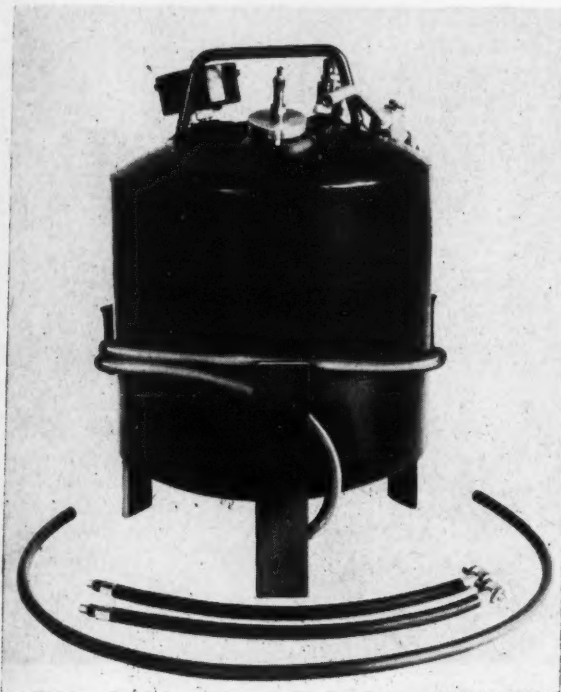
When inquiring check CP 1967 on handy form, pgs. 2-3

Automatic shut-off mechanism aids filling, bleeding hydraulic lines . . .

unit can operate in temperatures of -65°F to $+130^{\circ}\text{F}$ and withstands 300 psi pressure

Uses: For servicing hydraulic lines.

Features: Automatic shut-off valve within tank assists bleeding or filling hydraulic lines. Unit is capable of



Filling-bleeding tank for servicing hydraulic lines

operating efficiently at temperatures ranging from -65°F to $+130^{\circ}\text{F}$ and is pressure tested at 300 psi.

Description: Unit holds $2\frac{1}{2}$ gal oil and meets military specifications No. MIL-T-5182. It is equipped with filler cap, air inlet valve, pressure gage, relief valve, dispensing hose and control valve.

(Product of Superdraulic Corporation, Dept. CP, 14256 Wyoming Ave., Detroit 4, Mich. . . or for more information check CP 1968 on handy form, pages 2 and 3.)

Control Instruments for heating and cooling

Survey of automatic controls for heating, cooling and air conditioning is presented in 46-page catalog. Thermostats of strap-on, room, remote bulb, duct, and immersion models are illustrated in cut-away diagrams. Motor-operated valves are shown in pictorial and sectional illustrations.

Seven models for two-position control of steam, gas, water, oil, and brine are reviewed. Relative tables of steam and water capacities are included. For modulating control of liquids in mixing or by-pass applications, three units for proportioning control are described.

Catalog features control motors for two-position, five-position, and proportioning (modulating) control of dampers. Gear train, limit switches, and motor-operating mechanism are submerged in oil and housed in die cast

corrosion

CHEMICAL RESISTANCE OF "KARBATE" PRODUCTS

This table shows the grade of "Karbate" Impervious Graphite and the type of "National" Resin Base Cement recommended for commercial use in the more common corrosive chemicals. The concentrations and temperatures listed are based on field and laboratory experience, but the satisfactory use of these materials is not limited to the chemical reagents or conditions shown in this table.

Chemical Reagent	Concentration	Fluid Temperatures up to	Recommendation		Chemical Reagent	Concentration	Fluid Temperatures up to	Recommendation	
			Grade	Cement				Grade	Cement
ACIDS					HALOGENS, AIR, WATER, etc.				
Acetic acid	All	Boiling	22	14	Steam	—	338° F	22	14
Acetic anhydride	100%	Boiling	22	14	Water	—	Boiling	22	14
Arsenic acid	All	Boiling	22	14	ORGANIC COMPOUNDS	0-100%	Boiling	22	14
Boric acid	All	Boiling	22	14	Acetone	100%	338° F	22	14
Carbonic acid	All	200° F	22	14	Amyl alcohol	0-60%	Boiling	22	14
Chromium trioxide, aq. soln.	0-10%	Boiling	22	14	Aniline	100%	212° F	22	14
Citric acid	All	Boiling	22	14	Aniline hydrochloride	100%	Boiling	22	14
Formic acid	All	Boiling	22	14	Benzene hexachloride	100%	Boiling	22	14
Hydrobromic acid	All	Boiling	22	14	Butyl alcohol	0-100%	Boiling	22	14
Hydrochloric acid	48-60%	185° F	22	14	Butyl "Cellosolve"	100%	Boiling	21	14
Hydrofluoric acid	Over 60%	Boiling	22	14	Carbon tetrachloride	0-100%	257° F	22	14
Hydroiodic acid	All	Boiling	22	14	"Cellosolve"	100%	Boiling	22	14
Hydrophosphoric acid	Over 60%	Boiling	22	14	Chlorobenzene	100%	140° F	22	14
Hydroperfluoric acid	Over 60%	Boiling	22	14	Chloroform	100%	338° F	22	14
Hydrogen sulphide-water	100%	212° F	22	(1)	Dioxane	100%	Boiling	22	14
Lactic acid	0-10%	185° F	22	(1)	Dowtherm	0-100%	Boiling	22	14
Monochloroacetic acid	10-20%	140° F	22	(1)	Dioxan	0-8%	122° F	22	14
Nitric acid	Over 20%	Boiling	22	14	Ethyl alcohol	100%	200° F	22	14
Nitric acid	100%	Boiling	22	14	Ethylene chlorohydrin	100%	Boiling	22	14
Nitric acid	All	Boiling	22	14	Ethylene dibromide	100%	Boiling	22	14
Oleic acid	0-85%	Boiling	22	14	Ethylene dichloride	Saturated	Room	22	14
Oxalic acid	100%	Boiling	22	(1)	Ethyl mercaptan-water	100%	Boiling	22	14
Phosphoric acid	0-75%	Boiling	22	(1)	Freon 11 and 12	0-100%	338° F	22	14
Sulfuric acid	75-96%	338° F	22	14	Gasoline	100%	Boiling	22	14
Sulfuric acid	Over 96%	Room	22	14	Glycerine	0-100%	Boiling	22	14
Sulfuric acid	All	Boiling	22	14	Isopropyl acetate	100%	Boiling	22	14
Tartaric acid	All	Boiling	22	14	Isopropyl alcohol	100%	Boiling	22	14
ALKALIES					Isopropyl ether	100%	Boiling	22	14
Ammonium hydroxide	All	Boiling	22	15	Kerosene	100%	Boiling	22	14
Ammonium thiocyanate	0-67%	Boiling	21	15	Mannitol	0-100%	Boiling	22	14
Sodium hydroxide	67-80%	275° F	21	15	Methyl isobutyl ketone	100%	Boiling	22	14
Sodium hydroxide	All	Boiling	21	15	Methyl alcohol	100%	Boiling	22	14
Tetramine C	All	Boiling	22	14	Monochlorobenzene	100%	Boiling	22	14
SALT SOLUTIONS					Octyl alcohol	100%	Boiling	22	14
Aluminum Chloride	0-63%	Boiling	22	14	Paradichlorobenzene	100%	Boiling	22	14
Ammonium thiocyanate	100%	230° F	22	14	Paraldehyde	100%	Boiling	22	14
Arsenic trichloride	0-10%	90° F	22	14	Tetrachlorethane, sym.	100%	Boiling	22	14
Calcium chloride	All	Boiling	22	14	Trichloroethylene	100%	Room	22	14
Calcium hypochlorite	All	Boiling	22	14	MIXTURES				
Cupric chloride	All	Boiling	22	14	Ammonium persulfate plus	25%	Room	22	14
Ferric chloride	All	Boiling	22	14	sulfuric acid	20%	140° F	22	14
Ferrous chloride	All	Boiling	22	14	Calcium chloride plus	30%	Boiling	22	15
Ferrous sulphate	All	Boiling	22	14	calcium chlorate	10%	All	22	14
Manganese chloride	All	Boiling	22	14	Chlorinated ethyl alcohols	All	Boiling	22	14
Nickel chloride	All	Boiling	22	14	Chromic acid	Over 20%	Boiling	22	14
Nickel sulphate	100%	Boiling	22	14	Chromic plating solns.	All	Boiling	22	14
Phosphorus trichloride	0-4%	Boiling	22	14	Hydrochloric acid	All	Boiling	22	14
Sodium chloride	0-25%	Boiling	22	14	sol. with chlorine	All	Boiling	22	14
Sodium hypochlorite	All	Boiling	22	14	Nickel plating solns.	All	Boiling	22	14
Stannic chloride	All	Boiling	22	14	(chloride)	All	Boiling	22	14
Zinc ammonium chloride	All	Boiling	22	14	Nickel plating solns.	15%	140° F	22	(1)
Zinc chloride	All	Boiling	22	14	(sulfate)	5%	All	22	14
Zinc sulfate	All	Boiling	22	14	Nitric acid plus	5%	All	22	14
HALOGENS, AIR, WATER					hydrofluoric acid	5%	All	22	14
Air	100%	Room	22	14	Oxalic acid materials—				
Bromine water	100%	Room	22	14	O.C. 32, O.C. 33, O.C. 36,				
Chlorine-dry	100%	Room	22	14	O.C. 84A, O.C. 84M, CRY.				
Chlorine water	100%	Room	22	14	87, O.C. 88	All	Boiling	22	14
Iodine	100%	Room	22	14	Parkerizing solution	All	Boiling	22	14
Fluorine	100%	Room	22	14	Rayon Spin bath	0-25%	Boiling	22	14
					Sodium hypochlorite plus	96%	Boiling	22	14
					sodium hydroxide03%	Boiling	22	14
					Sulfuric acid plus		Boiling	21	
					nitric acid				

(x) Not recommended

NOTE: (1) "National" No. 14 Cement used with threaded joints will give serviceable life.
(*) The term "Cellosolve" is a registered trade-mark of Union Carbide and Carbon Corporation.

NATIONAL CARBON COMPANY • A Division of Union Carbide and Carbon Corporation

30 East 42nd Street, New York 17, N. Y.

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco
IN CANADA: National Carbon Limited, Montreal, Toronto, Winnipeg

WOW!
HOW AM I
GONNA LIVE?



...AND THE CONSERVATION OF CRITICAL MATERIALS

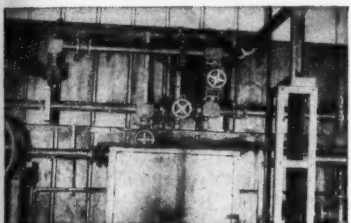
INSTALL **NATIONAL** carbon and graphite and "Karbate" impervious graphite
equipment for processing, conveying and storage of corrosive fluids.

IMMUNE TO THERMAL SHOCK • LIGHT WEIGHT • NO METALLIC CONTAMINATION • LONG LIFE—LOW MAINTENANCE



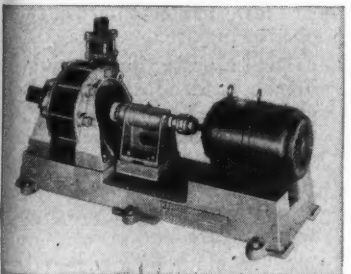
HEAT EXCHANGERS

Wide variety of standard and custom built models in time-proven designs. Shell and tube, cascade, concentric and immersion types available in stock sizes. High rates of heat transfer. Catalog Sections S-6620, S-6690, S-6715, S-6716, S-6750, S-6780.



PIPE, FITTINGS AND VALVES

Complete standard line to handle your toughest fluid conveying requirements. Easy to install and maintain with simple hand tools. Catalog Section S-7000.

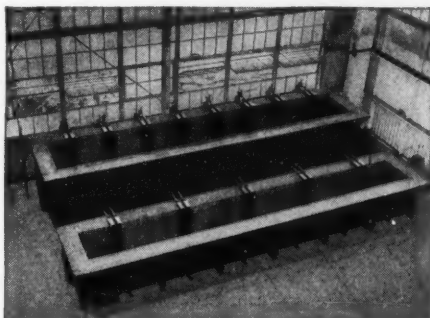
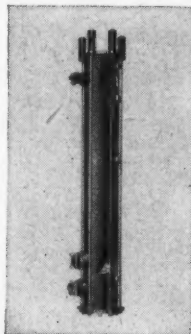


PUMPS

The centrifugal pump for handling corrosive fluids—rugged design, simple construction, trouble-free rotary seal. Handling capacities to 800 G. P. M. Catalog Section S-7200.

TOWERS

"Karbate" impervious graphite towers for absorption, fractionation, extrusion, scrubbing and many other processing operations. Easily erected from standardized monolithic sections and components. Catalog Section S-7350.

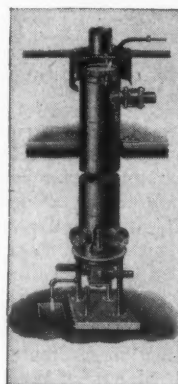


BRICK

Accepted material for lining tanks, towers, digesters and other vessels containing corrosive chemicals. Catalog Section S-6210.

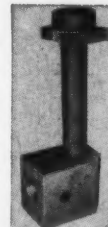
HCL COMBUSTION CHAMBERS

Versatile, standardized line for hydrogen chloride synthesis. Burns moist gas. Simplicity of operation. Catalog Section S-7530.



STEAM JETS

Withstand severe corrosive conditions and thermal shock in heating and agitating corrosive solutions by direct injection of steam. Catalog Section S-7300.

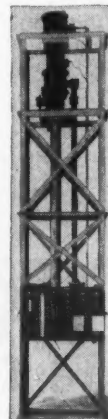


GROUND ANODES

"National" Graphite Ground Anodes for cathodic protection of buried, submerged or exposed metallic structures provide for control of current input to meet specific environmental conditions. Catalog Section S-6510.

HCL ABSORBERS

Standard and custom built models to meet any hydrochloric acid production requirement. Falling-film principal of absorption—proven efficient and compact design. More HCL produced in "Karbate" absorbers than in all other types combined. Catalog Section S-7430.



CONSTRUCTION & MAINTENANCE

case. Inside-outside temperature control units are described as they relate to aircraft, electronics, and hot water controls. "Controls for Heating and Air Conditioning" is issued by Barber-Colman Company, Dept. CP, Rockford, Ill. When inquiring specify CP 1970 on handy form, pages 2 and 3.

High-strength plastic sheeting available in flat panels for construction purposes . . .

weighing about 7 1/2 oz/sq ft, translucent material is fire resistant and will not crack or warp

Uses: Building material as in windows, skylights and side panels.

Features: In addition to being highly fire resistant, panels will not crack, warp, buckle, rot or mildew. They are unaffected by humidity, salt water, sunlight, heat or cold; resistant to mild acids, alkalis and organic solvents.

Another feature is ease of use, as panels may be cut (see accompanying photo), sawed, drilled, nailed, bolted or lapped with transparent mastic. Because of foregoing, it is reported that panels install for 30 to 80% savings as compared to other light transmitting materials.

Description: Made of Fiberglas impregnated with resin,



Flat panels can be cut with ordinary shears for easy use and installation

Alsynite translucent plastic is available now in flat panels in addition to its corrugated form. Sizes of flats are: width-26" and 34"; length-4' and 8'. Opal is the only color choice with flat material.

Physical Data

Weight, oz/sq ft	@ 7 1/2
Thickness, inches	0.050
Tensile strength, psi	15,000 to 16,000
Edge compression strength, psi	25,000 to 29,000
Ultimate flexural strength, psi	24,000 to 27,000
Modulus of elasticity, psi flexural	1.2 to 1.4 x 10 ⁶
Hardness, Barcol	50 to 60
Specific gravity	1.4 to 1.45
K factor	3

Comparing with the K's of other building materials, Alsynite is in the range of: building gypsum-about 3, plaster-2 to 5, building brick-3 to 6, and concrete-6 to 9.

(A product of Alsynite Company of America, Dept. CP, 4654 De Soto St., San Diego 9, Calif. . . or for more information check CP 1971 on handy form, pgs. 2 and 3.)

When inquiring check CP 1969 on handy form, pgs. 2-3

Fate? No-NEGLIGENCE!



LET'S nail it down. Too many of the fires that cost industry millions of dollars every year are acts of negligence. Of putting off till tomorrow and then ducking the issue of proper fire protection.

In most plants—and this probably includes *yours*—there are operations, equipment and processes that are "key" hazards. Here fire can start fast or cause losses in equipment and production far beyond its immediate property damage. For such hazards only the most powerful specialized protection is sufficient.

To provide such protection CARDOX developed "Low Pressure Carbon Dioxide Systems" years ago... made it practical to apply tons-a-minute of CARDOX CO₂ as readily as a few pounds, to stop big fires fast and keep small fires from becoming big. By holding fire damage to a minimum and eliminating extinguishment damage entirely CARDOX Systems have reduced industry's fire losses by many millions of dollars.

Why not let us show you how CARDOX can eliminate fire as a major threat to continuous operation? First step is a survey of your hazards and a frank report by a CARDOX expert. Please write us and we'll arrange it.

*Covered by Patents Issued & Pending

CARDOX
ORIGINATOR OF **Low Pressure CO₂**
FIRE EXTINGUISHING SYSTEMS

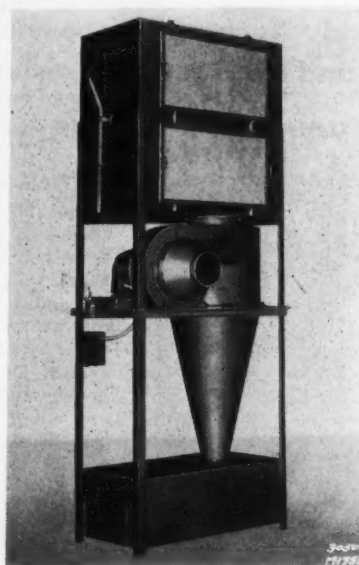
CARDOX CORPORATION • BELL BUILDING • CHICAGO 1, ILLINOIS
Offices in Principal Cities

When inquiring check CP 1972 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

Rated capacity of collector is 3630 cfm at 6" static suction . . .

requires only 10 sq ft of floor space; exhausted air can be returned to work area



Dust collector requires little floor space

collector can be returned to the working space.

Description: Dirt-laden air is drawn into collector by means of a self-clearing paddle-wheel fan driven by five-horsepower motor. First-stage cleaner is a cyclone separator; second-stage cleaner is heavily compressed fiber-glass filter.

Floor size measures 29 by 50 inches, and overall height is 132 inches. Operates on 220 or 440 volt, three-phase, sixty-cycle power.

(Model 3050 Dustkop is made by Agat-Detroit Company, Dept. CP, Ann Arbor, Mich. . . or for more information check CP 1973 on handy form, pages 2-3.)

Good temp characteristics common to each of 3 new lubricants . . .

grades offered for bearings, wire ropes, and also general purposes

Three new lubricants are currently being offered by the Texas Company. First — called Texaco High Temp Grease — is an anti-friction bearing lubricant which is reported to substantially extend the efficient range of operation of ball, roller, and plain bearings at high temperatures. The grease is serviceable at temperatures up to 300°F for continuous operation, and up to 350°F for intermittent operation.

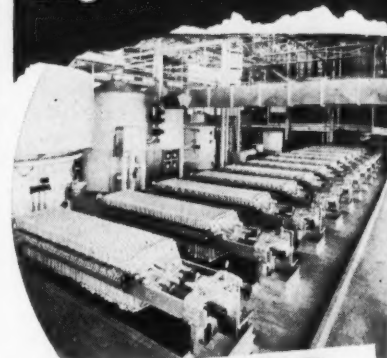
During its development, tests revealed that this grease had excellent oxidation resistance. It surpassed the hours-to-failure criteria of normal tests at 300°F and continued to exceed test specifications at higher temperatures. Performance at high speed is very good, and water resistance makes it applicable in operations where long retention of grease and resistance to washing out are factors.

The second — Texaco Multifak 2 — is an improved

Uses: Dust collector for use with grinding wheels and similar pieces of equipment.

Features: Requires only ten square feet of floor space but is capable of collecting dust from as many as ten grinding wheels at once. Has rated capacity of 3630 cubic feet of air per minute at static suction of six inches measured on an eight inch inlet pipe. Self-contained unit can be easily moved when building changes come up. Air exhausted from the

for Rayon or Gold
Sugar or Penicillin



**SHRIVER
FILTER PRESSES**
give better
filtration at
lower cost

Whether it's rayon or furfural, silver or zinc, brewery mash or wine, colors, salts, glue, clays, oils or pharmaceuticals . . . or a host of other products that need improvement through filtration—you can bet a Shriver Filter Press will do more jobs for you, better, at lower over-all cost.

Straight Facts Prove Shriver Filter Presses

- 1—Are lowest in cost per sq. ft. of filtering area.
- 2—Filter, clarify, decolorize, bleach or deodorize liquids and recover, wash, extract, thicken, steam out, melt or redissolve desirable solids or waste materials.
- 3—Operate at any pressure or temperature.
- 4—May be made of any metal, wood or plastic.

**Can you ask for more?
Get all the facts straight.
Get the new Shriver
Catalog.**

T. SHRIVER & CO., Inc.
846 Hamilton St. • Harrison, N. J.

When inquiring check CP 1974 on handy form, pgs. 2-3

CHEMICAL PROCESSING

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CONSTRUCTION & MAINTENANCE

general-purpose grease. Shear stability, resistance to water washing, and pumpability at low temperatures are reported excellent.

Third — Texaco Crater A — is a wire rope lubricant. Good penetration and adhesion permit application to wet wire rope. Field tests on cables indicate that it is especially useful under severe weather conditions or where cables are exposed to abnormal water conditions. It is a thin, liquid product applicable without heating. Remains pliable under a wide range of hot and cold atmospheric conditions. Maker reports that it will not drip in hot weather.

(The Texas Company, Dept. CP, 135 East 42nd Street, New York, N. Y. . . . or for more information check CP 1975 on handy form, pages 2 and 3.)

Plastic resin binder holds flakes of stainless steel together in coating product . . .

cured film offers resistance to alcohol, alkalis, salt spray; non-toxic and non-flammable

Uses: On wood, metal, concrete, brick, plaster board, and composition board.

Features: Resistance to chemicals, moisture and abrasion; offers toughness, adhesion and flexibility.

Description: Liquid Stainless Steel consists of microscopic flakes of 18-8 type, 302 stainless steel in a plastic resin binder. Cured film is odorless, tasteless, non-toxic and non-flammable.

TECHNICAL DATA

Coverage/gal	300 to 400 sq ft
Weight/gal	8 lb
Heat resistance (sustained)	180°F
pH	neutral
Color of vehicle	clear
Vapor transmission	practically nil
Water transmission	practically nil

CURED FILM RESISTANCE

Fresh or salt water	Excellent
Salt spray	"
Petroleum hydrocarbons	"
Alcohol	"
Oils	"
Alkalis	"
Glycols	"
Light stability	Good

Not recommended for use against aromatic hydrocarbons, chlorinated hydrocarbons, esters and ketones.

(A product of Slip-On Inc., Dept. CP, 401 Broadway, New York 13, N. Y. . . . or for more information check CP 1976 on handy form, pages 2 and 3.)

Describes structural features of pre-fabricated buildings

Simplified architectural form in 8-page bulletin shows structural features of pre-fabricated insulated steel buildings. Standard units that can be used either in single or multiple series for erection of nearly any size industrial, warehouse, or large utility buildings are illustrated. Bulletin also shows windows, doors, openings in various sizes.

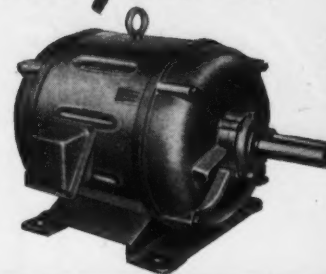
Bul No. 107 is issued by the Brookville Mfg. Co., Dept. CP, Brookville, Pa. When inquiring specify CP 1977 on handy form, pages 2 and 3.

APRIL, 1952

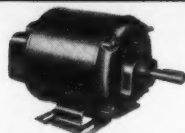
Wagner ELECTRIC MOTORS ... the choice of leaders in industry

Wagner Quality Motors for your product or your plant

When you select a motor from Wagner's complete line, you get a motor that is completely dependable in its specific application. You can choose from a wide variety of types and sizes. Here are a few of the motors in the Wagner line. At right is TYPE RP—open type polyphase squirrel-cage motor. It is drip-proof and suitable for all general purpose applications. 1/6 to 400 hp.



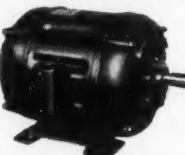
SINGLE-PHASE



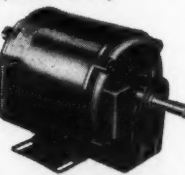
TYPE RB—Split-phase Induction. For easy starting applications with high starting current. 1/20 to 1/2 hp.



TYPE RK—Capacitor-Start Induction. For general purpose applications requiring high starting torque—normal starting current. 1/6 to 3 hp.

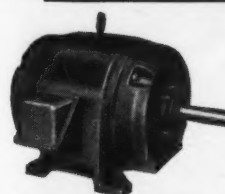


TYPE RG—Repulsion-Induction. For high starting torque applications involving a very long starting period. 1 to 5 hp.

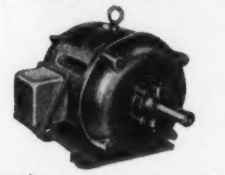


TYPE RA—Repulsion-Start Induction. For general purpose applications with high starting torque—low starting current. 1/2 to 1 1/2 hp.

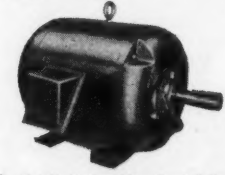
POLYPHASE MOTORS



TYPE XP—Splashproof. Protected against splashing or dripping liquids. 1/4 to 200 hp.



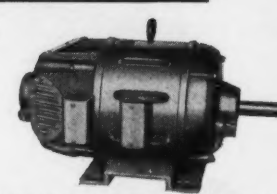
TYPE TP—Totally-enclosed, non-ventilated. Fully protected. 1/4 to 1 1/2 hp.



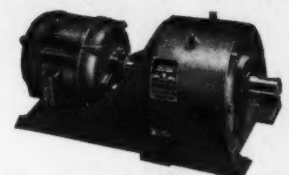
TYPE CP—Totally-Enclosed Fan-Cooled. Protected against dirt, chips, abrasives or fumes. Steel frame. 1 to 250 hp. Also in explosion proof type HP.



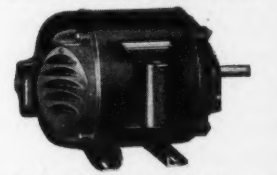
TYPE EP—Corrosion-resistant Totally-Enclosed Fan-Cooled. Cast iron frame. 2 to 250 hp. Also available in explosion proof type JP.



TYPE RS-1—Wound Rotor. Constant or adjustable varying speed. 1 to 250 hp. TYPE RS-2 for intermittent service. 2 to 200 hp.



GEAR MOTORS—Single-phase or Polyphase. Open or enclosed types. 1/20 to 50 hp.



DIRECT CURRENT MOTORS—Companion line to Wagner A.C. Motors. 1/6 to 3 hp.

In addition to a complete line of motors, Wagner also furnishes Increment Type Motor and Starter Combinations, Jet Pump Motors and a complete line of Transformers: Dry-type, Distribution and Power. Wagner engineers welcome an opportunity to serve you. Consult the nearest of 32 Branch offices, or write direct.

Wagner
Electric Corporation
EST. 1891

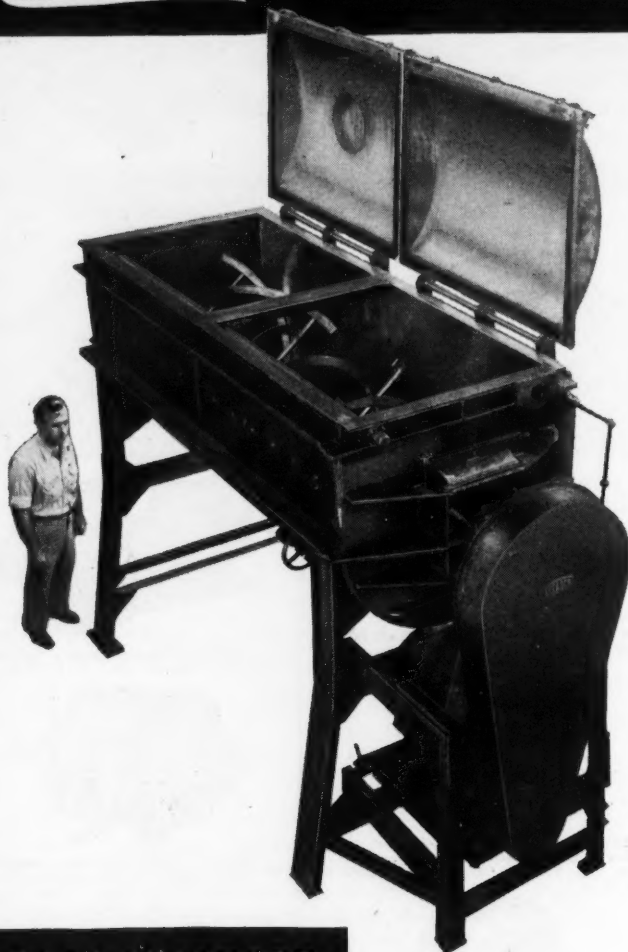
WAGNER ELECTRIC CORPORATION
6359 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES

When inquiring check CP 1978 on handy form, pgs. 2-3

VACUUM PROTECTION for your VOLUME PRODUCTION



READ STANDARD

CORPORATION

Readco Spiral Ribbon Vacuum Mixers enable you to avoid undesirable oxidation ... to recover solvents and evaporate moisture from large batches without the excessive, detrimental temperatures necessary under atmospheric conditions.

The single packing gland construction of Readco Vacuum Spiral Ribbon Mixers necessitates sealing against vacuum only where the drive shaft enters the vacuum chamber. Lubricant cannot possibly enter the mixing chamber.

No pressure differential exists across the quickly removable split seals.

A quickly opened, flush-plug discharge gate prevents accumulation of dead volume. Single or divided jackets provide a wide range of temperature control. Bakery-Chemical Division, YORK, PENNSYLVANIA; LOS ANGELES, CALIFORNIA.

When inquiring check CP 1979 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

Drawings aid in describing line of oil burners

Eight-page two-color catalog describes complete line of manufacturer's oil burners and contains illustrations of various sizes and capacities of the burners, including those with maximum capacities up to 60 gal.

Manufacturer reports that these oil burners are designed to utilize heavier grades of fuel oil, up to free-flowing No. 5, as well as light oils. Burners will also handle any fuel oil that does not require heating during storage and pumping to the burner. Other advantages stressed in the catalog include uniform high efficiency, wide range of sizes, automatic electric ignition, low fire start, safety controls, low pressure atomization, and automatic pressure lubrication. Catalog also includes specifications of all the manufacturer's oil burner models, with the back cover listing 14 specific features which are incorporated in the burners.

Cat AD-102, "Hev-E-Oil Burners," is issued by the Cleaver-Brooks Co., Dept. CP, 326 E. Keefe Ave., Milwaukee 12, Wis. When inquiring specify CP 1980 on handy form, pages 2 and 3.

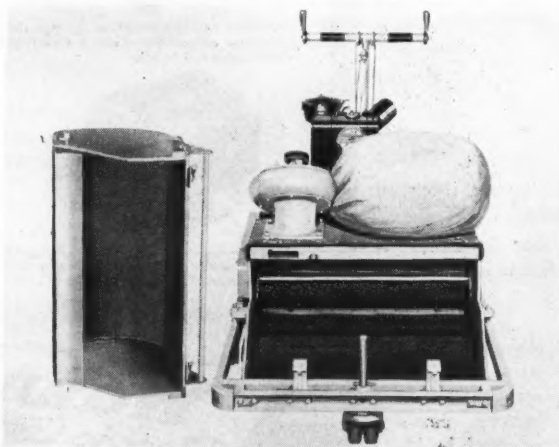
One man does work of twelve by taking 34" swaths with sweeper ...

devours dirt, nails, refuse from factories and docks up to 40,000 sq ft per hr

Uses: For cleaning up dirt, nails, refuse of all kinds found in most factories, warehouses, docks, garages, rail-road platforms, sidewalks, etc.

Features: Powered by gasoline motor, mechanism enables one man to do the work of ten or twelve others with brooms. Width is 34", and capacity is reported to be 35,000 to 40,000 sq ft per hr.

Description: Moto-Sweeper is equipped with dual brushes arranged in tandem, and operating in opposite directions. Front brush moving in clock wise direction throws heavier debris upward in the path of the rear



Does the work of a dozen men in cleaning up dirt, dust, refuse

brush which deposits it into the hopper. Powerful vacuum system draws dust upward. Automatic power steering is accomplished by use of a separate clutch on each wheel, operated by levers on the handle bar. Sulky with footbrake is optional equipment. A side-

Which is your
industrial
cutting
problem



- ☐ Cutting cellulose, acetate, bakelite, or other plastics for further processing.
- ☐ Cutting dry chrome or green stock for making glue.
- ☐ Cutting rubber stock for molding.
- ☐ Converting news, waste, paper, and boxboard into packing material.
- ☐ Cutting rayon, silk, cotton, or other thread waste for carding and blending.
- ☐ Cutting rags, straw, or other fiber for the making of paper.
- ☐ Exact cutting of fiber in rove or sliver form for staple.
- ☐ Chopping old tires and scrap rubber for reclaiming.
- ☐ Some other cutting need.

For these and many other cutting purposes there are efficient Taylor-Stiles cutters, developed to meet exacting specifications, now standard equipment in many industries.

Write for literature describing the full line of Taylor-Stiles cutters.

TAYLOR-STILES
and Company
CUTTING MACHINES & KNIVES

20 Bridge Street
Riegelsville, N. J.

When inquiring check CP 1981 on handy form, pgs. 2-3

CHEMICAL PROCESSING

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CONSTRUCTION & MAINTENANCE

brush for cleaning along walls, and which increases swath by 11" is also optional.

(Product of Moto-Sweeper Div., The Moto-Mower Co., Dept. CP, 4600 Woodward Ave., Detroit 1, Mich. . . or for more information check CP 1982 on handy form, pages 2 and 3.)

Renews serviceability of flooring within 24 hr after applying impervious coating . . .

premixed wood, chemical, plastic compound adheres permanently with no underlayments

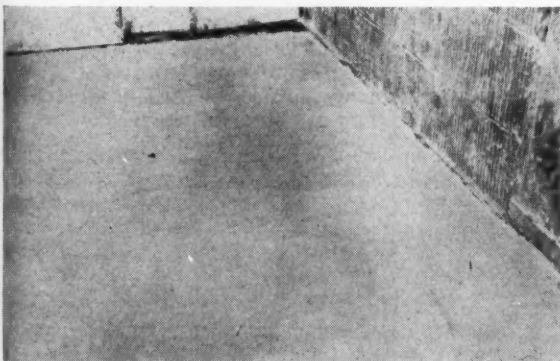
Uses: For repairing or renewing worn, cracked, rutted, or disintegrating floors of concrete, wood, asphalt, and composition materials.

Features: Combination of hardwood fibers (chemically treated) and plastic binds itself permanently to almost any substructure and hardens by chemical action for use within 24 hours. No underlayments are required. Material can be quickly and easily laid with a trowel by inexperienced help. Resembling cork flooring, it is reported by manufacturer to outwear concrete. Resiliency reduces standing and walking fatigue to a minimum.

Description: Roc-Wood flooring withstands vibration, is slip and skid-proof even when damp or covered by water. Other qualities reported by manufacturer include: 1)



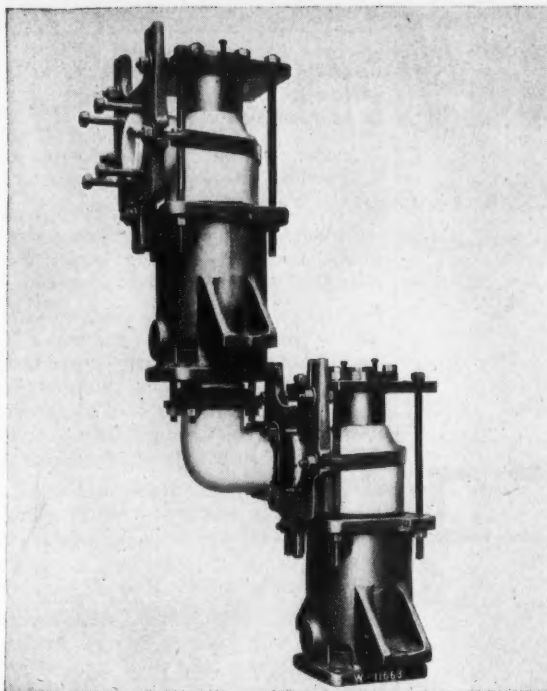
Applied with trowel, flooring compound needs no underlayment for floor renewal



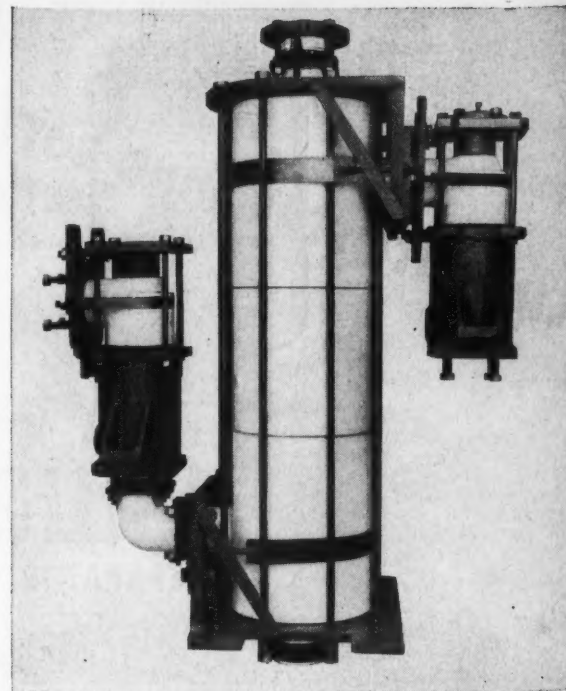
termite-, rot- and rat-proof, 2) feather-edges easily for repairs, and 3) is impervious to lactic and most other acids. Material withstands animal fats, grease, oils, urea and strong brine solutions, as well as cleaning solutions.

(Product of Roc-Wood Flooring, Dept. CP, 364 E. 23rd St., Chicago 16, Ill. . . or for more information check CP 1983 on handy form, pages 2 and 3.)

APRIL, 1952



Worthington two-stage non-condensing ejector—porcelain



Worthington two-stage condensing unit—porcelain

How To Maintain an Uninterrupted Vacuum in the presence of corrosive vapors

Use a Worthington corrosion-proof steam-jet ejector. These are made in stock sizes and specially engineered for handling any corrosive vapor problem in the chemical field.

For corrosive vapors, these ejectors are made with impervious graphite nozzles and diffusers. Suction chambers are of porcelain, but these can also be furnished of impervious graphite. Porcelain diffusers are also available.

For corrosion-resistant usage, Worthington makes ejectors of bronze, stainless steel or Worthite (a special Worthington "super-stainless").

Worthington's is the *most complete* ejector line. A model for every vacuum requirement

—from atmospheric to 50 microns absolute. Single and multiple stages. Condensing and non-condensing.

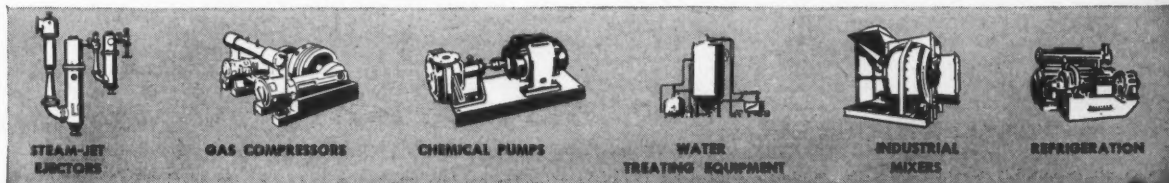
Put your problem—distillation, drying or any other vacuum problem—up to Worthington Pump and Machinery Corporation, Steam Power Division, Ejector Section, Harrison, New Jersey.

WORTHINGTON



STEAM POWER DIVISION

x1.2



When inquiring check CP 1984 on handy form, pgs. 2-3

ELIMINATE SCREENING BOTTLENECKS



WITH A
SWECO
SEPARATOR



SINGLE OR MULTI-
DECK WET OR DRY
CLASSIFYING AND
DEWATERING

The SWECO Separator with its unique screening action is continually eliminating screening bottlenecks in processing industries of all types. Its capacity per square foot of screening area is greater than for any other screening device known. The life of the screen cloth is guaranteed and long exceeds expectations of experienced users, reducing down time and maintenance costs. Only three moving parts; no substructure vibration; no V-belt drives. Completely contained unit ready for operation when electrical power connection is made. Write for complete details.



The SWECO SEPARATOR
Division of **SOUTHWESTERN ENGINEERING COMPANY**
4800 SANTA FE AVENUE • LOS ANGELES 58, CALIFORNIA

When inquiring check CP 1985 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

Continuous automatic winder suited to films and sheeting of low tension values . . .

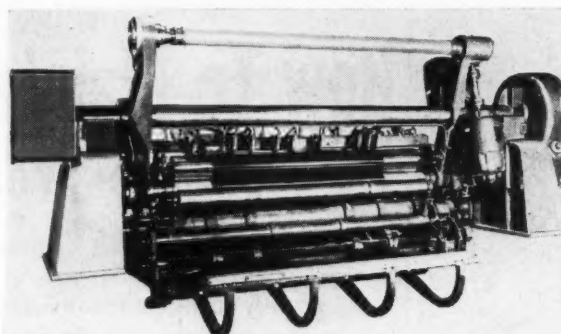
changes from fully wound roll to new core or shell without slowing down of process

Uses: Suited to winding of web materials which must be wound with extremely low tension values, such as plastic film and sheeting produced continuously from calenders, extruders and coating equipment.

Features: Tension is positive and is maintained absolutely constant at value for which it is set. A remote control selector switch allows two diameters of winding cores or shells to be used alternately. Even and uniform starts are made and require no adhesive or special processing of core. Changes from a fully wound roll to a new core automatically without slowing down process.

Description: Continuous automatic Model 40 Winder accommodates rolls up to 24" in diameter and 1000 lb in weight. Total web tension range is 2 to 60 lb and maximum speed, 170 yards per minute; maximum web or ribbon width is 84".

Winder itself consists of a rotatable center wind, and two arm reel with separate motors driving the winding core or shell (which vary from 3 to 9" in diameter) through ball bearing spindles. Separate driving motors are variable voltage DC and are furnished as integral part of winder.



Winds plastic film or sheeting at 170 ypm

Winder drive is suitable for addition to any existing take-off and does not require alteration of basic calender or take-off previously installed.

In Model 40 slitters are incorporated in winder close to roll being wound. With slitters in this position, straight edges are maintained and it is possible to slit into several widths.

(Manufactured by Dilts Machine Works Division, The Black-Clawson Co., Dept. CP, Fulton, N. Y. . . . or for more information check CP 1986 on handy form, pages 2 and 3.)

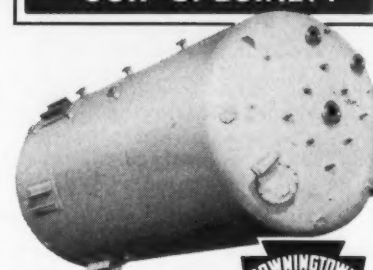
Liquids, slurry, sewage are removed by centrifugal sump pump at 1000 gpm . . .

in eight sizes, pumps can be constructed of metals to resist corrosive chemical action

Uses: For handling clear liquids, sewage, and other liquids containing solids.

Features: Supplied in eight sizes from 1½ to 8", manufacturer's types VS and VN vertical centrifugal sump pumps have capacities to 1000 gpm and pressures to 250

Your needs-
OUR SPECIALTY



One of 4 Fermentors, 12'0" x 22'7" high tangent, 10% Stainless Clad, type 304 Stainless . . . manhole body and connections type 304 Stainless. Each fermentor equipped with coils of 3" O.D. x 14 ft. tubing . . . type 304 Stainless. Tested to 80 lb. Hydrostatic . . . produced in accordance with case 896 of the A.S.M.E. Code.



CORRECT DESIGN RIGHT MATERIALS

. . . yes, DOWNTOWN'S experience and research in the fabrication of various grades of Carbon Steel, Stainless Steels, Nickel-Clad, Stainless-Clad, Monel-Clad, Cupro-Nickel, Aluminum, etc., may be of help to you. We are equipped with the most modern facilities to handle complete jobs, within our limitations, in the correct alloys and methods of fabrication required to assure maximum operating efficiency.

DOWNTOWN also maintains a Heat Transfer Division under the direction and supervision of men thoroughly trained and experienced in this field. Our Engineering Consultation is at your service to aid you in preparation of plans and specifications for definite jobs.

Useful literature sent upon request on your business letterhead. **REMEMBER:** "Your Needs are Our Specialty!"



NEW YORK OFFICE — 30 CHURCH STREET

When inquiring check CP 1987 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CONSTRUCTION & MAINTENANCE

psi and can be constructed of any machinable metals to resist corrosive action of chemicals.

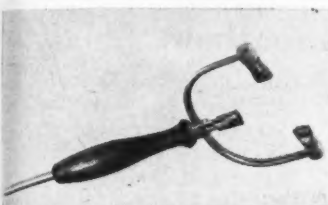
Description: Pump casings are of close-grained cast iron, single stage, volute type, bottom suction, with flanged openings connected to discharge pipe by a long sweep bend.

Impeller on VS model is open type, multi-vane bronze or cast iron to specification. Two-vane, semi-non-clog impellers are also available. VN model impeller is of open type, two-vane, non-clog cast iron construction. Is available in closed type of bronze. Shafts are of high tensile cold finished steel. Bronze pumps have stainless steel or other corrosion resisting shafts. Main bearing is located at cover plate, is self-aligning, with deep groove. Grease lubricated, sealed anti-friction, radial thrust type carries motor, thrust and radial loads.

(Pumps are produced by Warren Steam Pump Company, Inc., Dept. CP, Warren, Mass. . . . or for more information check CP 1988 on handy form, pages 2 and 3.)

Forms seal to hold vacuums in glass tubes, bulbs, neon signs . . .

three-nozzle U-shaped hand fork is applicable for wide range of glass blowing operations



For vacuum sealing of tubes, bulbs,
neon signs

Uses: Glass blower's hand torch suitable for removing and sealing off glass tubes, bulbs, in a vacuum system.

Features: When burner is applied to evacuated glass tube, the flames quickly soften to a narrow circular band, causing

the tube to collapse at that point and seal itself off.

Description: Torch has three nozzles for wide variety of glass blowing operations. U-shaped fork carries three grid-type, interchangeable, fish-tail burners placed at 90° apart so that flames converge at midpoint.

(Product of Research Vacuum Supply Co., Dept. CP, 3434 W. Montrose Ave., Chicago 18, Ill. . . . or for more information check CP 1989 on handy form, pages 2 and 3.)

Illustrates and describes 30 fans for industry

Sectional diagrams and brief description accompanies each of 30 fan types in 32-page catalog. Four-page section reviews correct method of selecting and installing proper fan. Duct resistance chart permits calculation of resistance losses in duct systems. Schematic illustrations and list of 22 "Do's and Don't's" review the right procedure for installing ventilation and exhaust units.

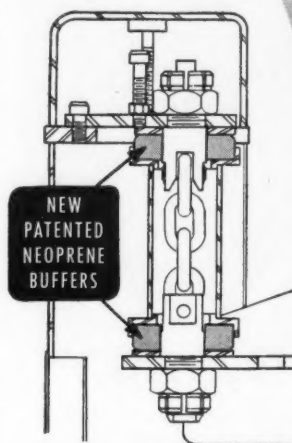
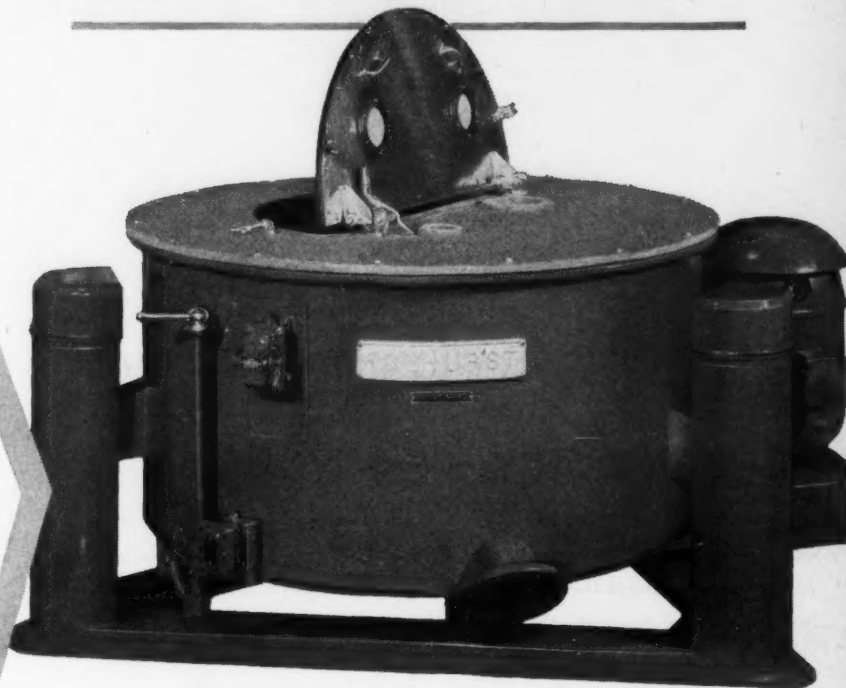
Fans are designed for application in general ventilating, fume and dust removal, or direct application for product cooling and drying.

Three-color bulletin describes fans available in 300 sizes. Models range from residential unit powered by 1/3 hp motor to grain drying fans using 3, 5, and 10 hp motors. Cat 400 is issued by Chelsea Fan & Blower Co., Inc., Dept. CP, 639 South Avenue, Plainfield, New Jersey. When inquiring specify CP 1990 on handy form, pages 2 and 3.

APRIL, 1952

NEW Centrifugal

SAVES TIME AND LABOR



NEW
PATENTED
NEOPRENE
BUFFERS

IMPROVED PEDESTAL
DESIGN CONTROLS
VIBRATION

FEWER STOPS to rearrange load

Tolhurst "Center-Slung" Centrifugals, long famous for their exceptional stability, have now been re-designed to handle even greater out-of-balance loads.

Tolhurst "Center-Slung" Centrifugals have the case suspended by flexible chain links so that the revolving mass is free to find its own center of gyration, resulting in unusually smooth operation. Now, the chain links are housed in grease-packed metal sleeves and are mounted top and bottom in neoprene buffers to absorb vibration. Tests show that this improved Tolhurst "Center-Slung" can handle out-of-balance loads 3 to 4 times greater than ever before. Less care is needed in load-

ing the basket and fewer stops are required to redistribute the load.

Other improvements include mounting the spindle in roller and double row ball bearings in a new type of tubular housing, a slanting case bottom for faster, more complete drainage, a new self-energizing brake and more compact motor mounting.

Machines are available with split cover or full cover and can be fume-tight construction. Basket, case and cover can be constructed of any practicable material, as specified. Single speed or two-speed motor drive, or infinitely variable speed hydraulic drive available. Basket sizes, 12" through 108" in diameter.

Write for complete details



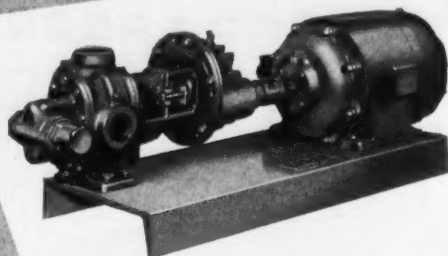
Tolhurst CENTRIFUGALS DIVISION

AMERICAN MACHINE AND METALS, INC.
EAST MOLINE, ILLINOIS

When inquiring check CP 1991 on handy form, pgs. 2-3

EFFICIENCY

PLUS



THE DEPENDABLE ROPER

FOR GENERAL PURPOSE PUMPING

What do you expect of the pumps you install? Efficiency, dependability, endurance, simplicity, an unusually high record of performance? If these are your requirements, by all means investigate the Roper 3600 Series; pumps that are engineered to do a wide range of jobs handling both thick or thin clean liquids.

At this very moment the interests of tank truck operators, refineries, bulk stations, process plants and general industries are being served by thousands of Ropers. The size for your needs can do an equally productive job for you!

OUTSTANDING FEATURES...OUTSTANDING PERFORMANCE

Pumping liquids from A to Z calls for quality-made components accurately assembled. Series 3600 pumps feature hardened helical pumping gears; heavy duty, high-lead bronze bearings; adjustable relief valve (from 20 to 90 P.S.I.); split packing gland; one-piece case of practical design. Standard or special fitted models available. Pressures to 60 P.S.I. — capacities 40 to 300 G.P.M.



Send Today For
"HOW TO SOLVE PUMPING PROBLEMS"
FREE ON REQUEST



ROPER

Rotary Pumps

GEO. D. ROPER CORP.
744 Blackhawk Park Ave.
ROCKFORD, ILLINOIS

When inquiring check CP 1992 on handy form, pgs. 2-3

CONSTRUCTION & MAINTENANCE

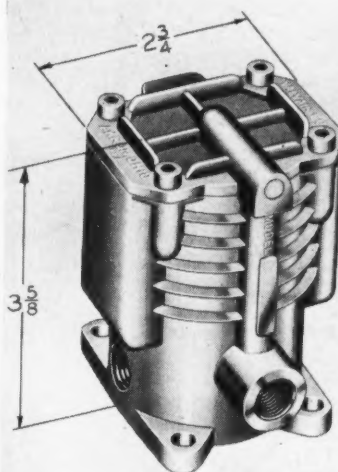
Fast-acting pilot valve directs diaphragm or cylinder . . .

larger sizes capable of 150 cycles per minute, smaller ones can operate at 300 cycles

Uses: Pilot valves for pneumatic or hydraulic systems where electrical control is needed. Valves can also be used for on-off control of flowing oil, water, or air.

Features: Valves with $\frac{3}{4}$ and 1-inch cylinders can be operated as fast as 150 cycles per minute. Smaller valves

(cylinders $\frac{1}{4}$, $\frac{3}{8}$, and $\frac{1}{2}$ -inch have 300 cycles per minute top speed. Under extreme service like this, flowing fluid accomplishes cooling of the solenoid.



Dimensions of pilot valve

Description:

Solenoid Pilot Valves with three-way flow are being offered for normally open or normally closed operation. Two-way flow can be achieved by blocking one opening (this can be done at factory). Body and cover are zinc alloy die castings. Seats,

plunger, and springs are stainless. Both ends of the plunger are equipped with hycar seats which are expected to wear for about ten million cycles. Although coils are sealed from the fluid being controlled, manufacturer recommends a special shield coil model for service when the valves are being used with water.

Operating at standard voltages of 110, 220, and 440 v 60 cps, valve requires 27 watts for holding, 41 watts at start of operation. All valves are tapped for $\frac{1}{4}$ -inch pipe.

(Product of Valvair Corporation, Dept. CP, 454 Morgan St., Akron 11, Ohio . . . or for more information check CP 1993 on handy form, pages 2 and 3.)

Cement expands as it sets to simplify installation, maintenance work . . .

mortar-like material is very dense, does not shrink, unaffected by water, alkalis, oils

Uses: Mortar-like cement for general installation, repair, and maintenance. Being used as a crack filler, anchoring cement, etc.

Features: Expands as it sets, forcing itself into the pores of tile, concrete, wood or other materials. By completely filling the space where it is applied, it makes a leak-proof, vibration-proof bond. After setting, it does not shrink and is unaffected by water, steam, alkali, soap, and oil.

Description: X-Pandotite is a powder that is mixed with water to any desired consistency prior to use. Dry colors can be added to match any color. After hardening it becomes an extremely dense material that can be



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engineering and
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equipment
know-how

- Nitric acid plants including direct oxidation by pure oxygen for the manufacture of high concentrated acid
- Fertilizer Plants
- Recovery of waste pickling acids in steel mills
- Recovery of sulfur from Petroleum and Gases including Sweetening Alk-acid Plants
- Treatment of fish oil for its use as edible oil and fats
- Wecker plants for increase of yields in existing oil refineries
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Write for descriptive literature.
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When inquiring check CP 1994 on handy form, pgs. 2-3

CHEMICAL PROCESSING

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CONSTRUCTION & MAINTENANCE

drilled, tapped, ground, polished. Takes paint and stain. (Product of X-Pando Corporation, Dept. CP, 43-15 36th Street, Long Island City 1, N. Y. . . or for more information check CP 1995 on handy form, pages 2 and 3.)

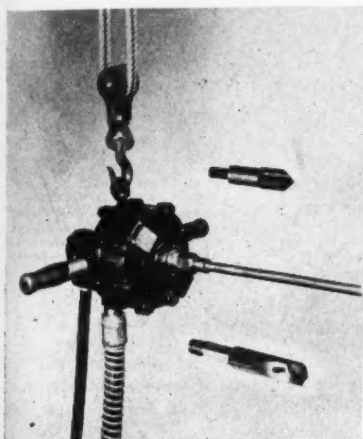
Suspended mechanism facilitates cleaning condenser tubes . . .

works well in removing hard or soft deposits and flushes scale from small, straight tubes

Uses: For cleaning small, straight condenser tubes.

Features: Suspension-type condenser cleaner, equipped with pneumatic or heavy-duty electric motor, trigger controlled valve, and specially designed drill heads, removes soft, gummy deposits or hard, corrosive scale. Drill tip incorporates passages for four separate water (or solvent) jets which prevent clogging.

Description: Supported overhead by a trolley, rope-block, or hanger, cleaner motor has two ball-type thrust bearings which absorb strain during operation. Control valve is actuated by "squeeze" trigger located at base of one of the operating handles, convenient to operator's right hand but not in a position to be opened accidentally. Same trigger also controls flow of water for cooling drills and flushing out loosened scale. Water feeding mechanism features self-adjusting packing changeable for either water or solvent.



Top drill removes gummy deposits from condenser tubes, bottom drill is for extremely hard deposits

Cleaners are supplied with two drill heads. One for removing soft, gummy deposits where strong, flushing action is desired; the other, a carbide-tipped drill, for extremely hard deposits. Carbide-tipped drill is made with a soft, tough-steel adapter section to absorb vibration and minimize shock to the hardened tip. (Products of Lagonda Division, Elliott Company, Dept. CP, Jeannette, Pa. . . or for more information check CP 1996 on handy form, pages 2 and 3.)

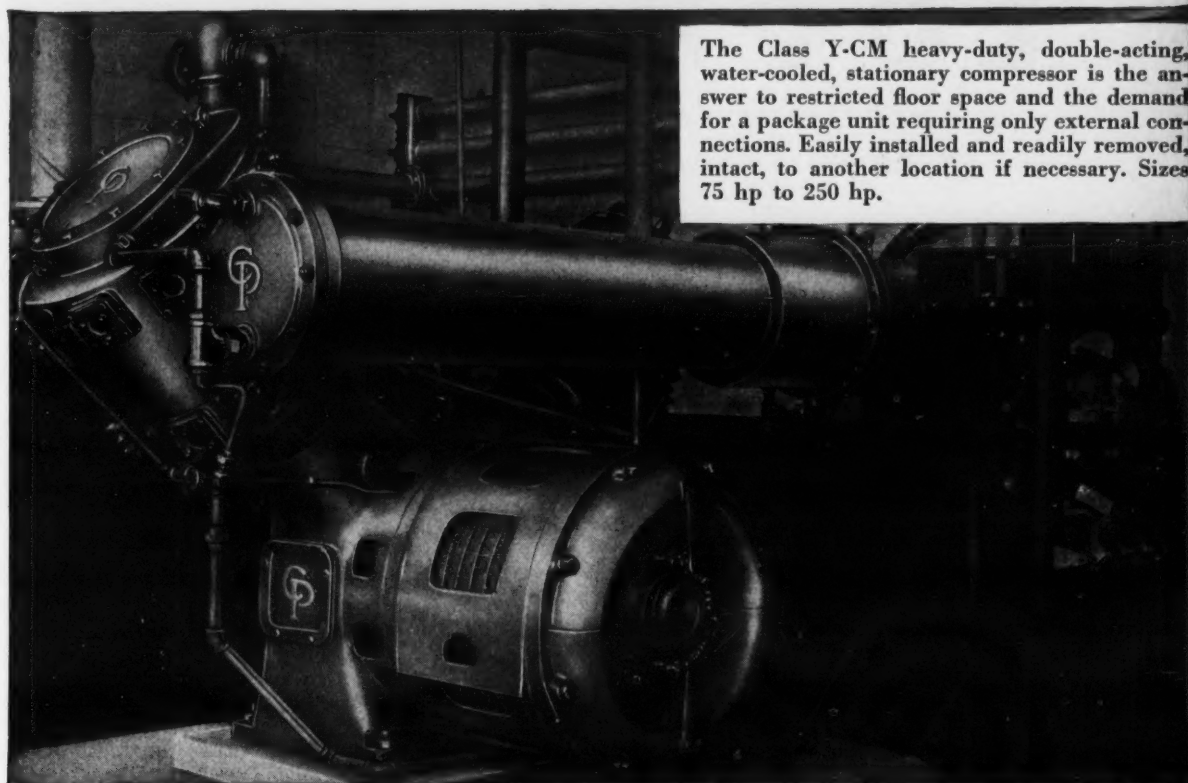
Report aids maintenance men in checking bearings' wear

Concentrating on the many and varied problems of maintenance of anti-friction bearings, this file-folder, 16-page report serves as a practical, down-to-earth guide to bearing maintenance problems.

Some of the topics included in the report are: 1) recognition and correction of bearing failures, 2) correct installation of oil seals, 3) what, when, why, and how of lubrication, 4) preparing shafts for bearings, 5) installation procedures for ball thrust bearings.

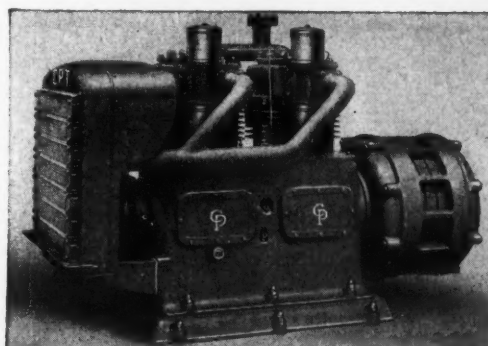
"AFBDA Bearing Maintenance Report" is issued by the Anti-Friction Bearing Distributors Association, Dept. CP, 1900 Euclid Ave., Cleveland 15, Ohio. When inquiring specify CP 1997 on handy form, pages 2 and 3.

APRIL, 1952



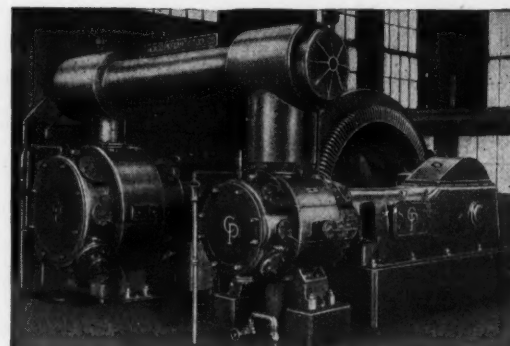
The Class Y-CM heavy-duty, double-acting, water-cooled, stationary compressor is the answer to restricted floor space and the demand for a package unit requiring only external connections. Easily installed and readily removed, intact, to another location if necessary. Sizes 75 hp to 250 hp.

dependable, low maintenance compressors
from 7½ hp to 2000 hp



The small, compact, two-stage Class PM compressor—air-cooled for all-weather operation—may be installed independently of main air system. Also suitable for off-hour operations. Sizes from 25 hp to 100 hp. Available with built-in motor, flexible coupling or V-belt drive.

Write for further information on these and other types of CP Stationary Compressors.



Built in the larger sizes — up to 2000 hp, Class O-CE horizontal duplex motor-driven compressors meet all load demands most economically, and "last forever."

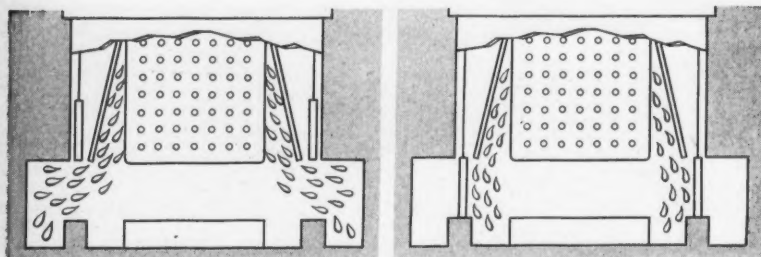


PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

When inquiring check CP 1998 on handy form, pgs. 2-3

LOOK!

2 successive liquids
separated without mixing



CURB OPEN to permit first liquid to be separated and evacuated from machine.

CURB SHUT, second liquid is separated and removed through lower outlet without mixing with first liquid.

Industry benefits from broad use of centrifuging . . .

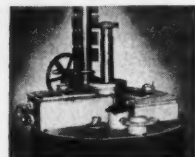
thanks to new AT&M developments. The centrifugal above — a profitable investment wherever two or more liquids are separated in a cycle — is but one of many outstanding AT&M centrifugals that save time, space, costs.

As the drawings above show, this curb is designed to remove two successive liquids without mixing. With the curb open, the first liquid is separated and evacuated through the curb outlet. The curb is then closed and the second liquid is separated and removed through a different outlet.

You, too, can benefit with AT&M equipment. Does away, in many instances, with settling tanks, filter presses, squeeze rolls, vacuum presses. Used in processes involving chemical preparations — explosives — nitrating — acid wringing — ammonium sulphate — food products — soap — drugs, medicines, cosmetics — oils and greases — paints, varnishes — ceramics, brick, clay — fertilizers — nitrates — sludges — textiles — carbonizing (textiles) — plastic bases.

Find out now how AT&M centrifugals can help you. Send for free booklet today.

P.S. PROVE TO YOURSELF how centrifuging can benefit you. Send us a sample of your material for centrifuging to your specifications or rent an AT&M laboratory centrifugal for your own tests at a nominal fee.



FUME-PROOF. No gases can escape from this specially designed AT&M centrifugal. Its fume-tight hood — originally developed by AT&M engineers to solve a special problem — is now used to advantage by many firms processing volatile liquids.



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Please send me my free copy of the new AT&M booklet "Centrifugal Force." I am interested in the following processes:

Separation ☐ Extraction ☐ Dehydration ☐ Clarification ☐ Coating ☐
Filtration ☐ Draining ☐ Thickening ☐ Impregnation ☐ Sedimentation ☐

ANY OTHER PROCESS

Name Title

Company

Street

City Zone State

**SAVE TIME,
SPACE AND
COSTS WITH**

**A.T. and M.
CENTRIFUGING**

When inquiring check CP 1999 on handy form, pgs. 2-3

CONSTRUCTION

**Vaporizes up to 1 ton
chlorine/hr with
steam at 5 psig . . .**

disassembly easy — requires removal of one set of bolts

Uses: Installations that require relatively large amounts of dry gaseous chlorine — as in preparation of bleach solutions for pulp mills; in water, sewage and waste treatment plants, etc.

Features: Unit is disassembled by removal of just one set of bolts — permitting convenient steam cleaning and washing of interior parts.

Description: Whitlock Standard Steel Chlorine Vaporizer is a steam-jacketed, multi-pass unit. Maximum vaporizing rate is 1 ton/hr with a maximum steam pressure of 5 psig. Steam jacket is fabricated of 14" OD x 3/8" thick seamless steel pipe, while inner heating chamber and entrainment chamber are of extra heavy pipe. Unit's overall height to chlorine vapor outlet pipe is 5' 11 3/4".

Incoming liquid chlorine is distributed by a baffle to the walls of the lower steam jacket and to the inner heating chamber.

Chlorine gas, as it travels upward, is superheated in the upper steam jacket before passing into the entrainment chamber and into the process lines. Superheat is adjusted to a minimum of 18°F.

Vaporizer body is supported on a flat plate drilled for floor bolts.

(Manufactured by The Whitlock Manufacturing Co., Dept. CP, Hartford 10, Conn. . . . or for more information check CP 2000 on handy form, pages 2 and 3.)

**Protective coating
comes off like
banana skin . . .**

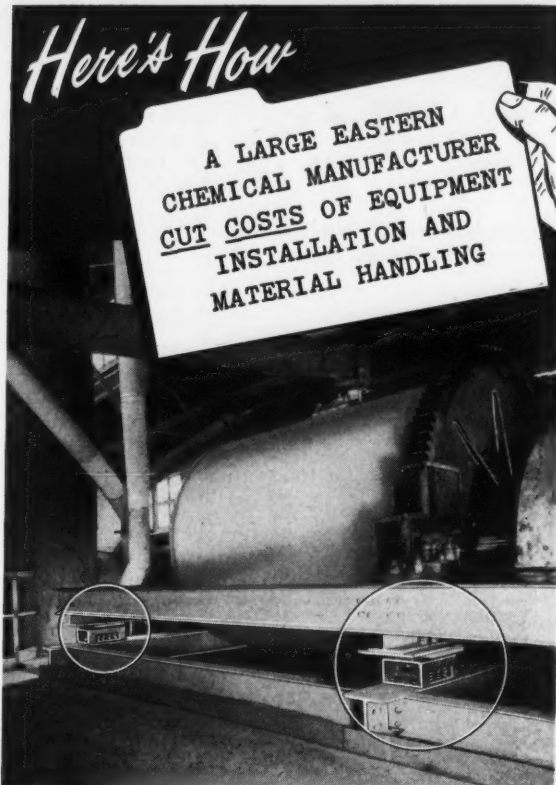
sets to touch in 15 min; available in clear and tints

Uses: On all metal surfaces and wood to protect temporarily against corrosion, abrasion and atmospheric conditions.

Features: Sets to touch in 15 min.

Description: Plastic strip finish, VC-12, may be applied by spraying equipment or brush. Available in clear and tinted colors, this vinyl finish peels off all non-porous surfaces in sheet-like form. Price range is said to be advantageous to wide use.

(Developed by United Lacquer Mfg. Co., Dept. CP, 1001 W. Elizabeth Ave., Linden, N. J. . . . or for more information check CP 2001 on handy form, pages 2 and 3.)



This Patterson Foundry & Machine Co., Pebble Mill, installed on an upper floor in a large eastern chemical plant, is mounted on eight Korfund Steel Spring Vibro-Isolators. Total spring weight is approximately 43 tons.

. . . by Controlling Vibration

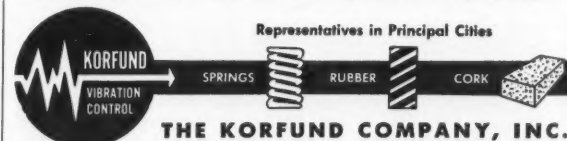
In many processing plants, there is much to be gained by installing mills, grinders, pulverizers, shaker screens, agitators and centrifuges on upper floors—for gravity flow of materials down through the building.

Yet, if rigidly mounted, the cost of concrete foundations or structural reinforcement for upper floor installations of such equipment might completely wipe out the savings in materials handling—without guaranteeing a vibration-free installation.

When mounted on Korfund Vibro-Isolators, however, the story is entirely different.

As in the case of the pebble mill installation above, Korfund Isolators prevent transmission of vibration and shock loads to the structure, so that even heavy equipment can be installed high in the building with little or no structural reinforcement—and at surprisingly low cost. For less critical installations, there are even lower cost Korfund mountings.

The Selector Chart in Bulletin G-104 gives recommendations for isolation of most equipment for both critical and normal conditions. See Sweet's Catalog Files, or write us for your free copy today. We'll also submit specific recommendations, without obligation. Just contact us, or the Korfund representative you'll find in most principal cities. A half century of experience is at your disposal.



When inquiring check CP 2002 on handy form, pgs. 2-3

CHEMICAL PROCESSING

**Increase life of dies, tools
as much as ten times by
chrome plating . . .**

self-contained plating unit has 250 ampere capacity;
takes work up to 125 square inches in area

Uses: For chrome plating cutting tools, wearing parts,
dies, etc., in order to increase their service life (as much
as ten times). Will accommodate parts with areas up to
125 square inches.

Features: Average plating time for cutting tools is



Self-contained chrome plating unit

about 3½ minutes. Unit is completely self-contained,
compact, easy to operate, and is reported to require no
maintenance.

Description: Model A-250 Chromaster has a capacity
of 250 amperes. Chromasol is the specially prepared
chrome plating solution used in the unit. Power unit of
Model 250-A contains a built-in selenium rectifier complete
with instrument panel and controls for accurately regu-
lating the rate of chrome deposit.

(Product of Ward Leonard Electric Company, Industrial
Chrome Division, Dept. CP, Mount Vernon, N.Y. . . .
or for more information check CP 2003 on handy form,
pages 2 and 3.)

**Finds use in masking where
other tapes might stain . . .**

immediately or with age due to long storage con-
ditions or delayed transportation

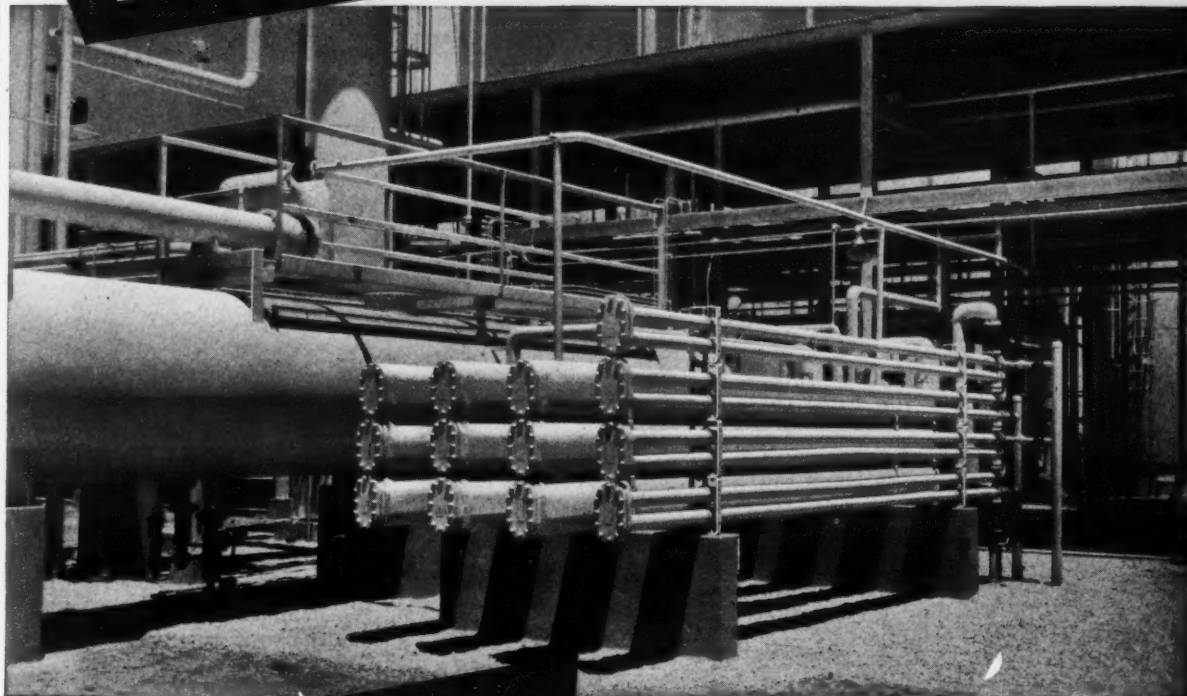
Uses: Specifically designed for use on lacquered,
enameled, painted and porcelainized surfaces where color
separation, masking and holding functions are required.

Description: Behr-cat Brand 115 Stain-Resistant Mask-
ing Tape is particularly effective on white, off-white and
light pastel colored surfaces where the chemical reaction
of regular type masking tapes have a tendency to stain
immediately or with age due to long storage or delayed
transportation.

(Available from Behr-Manning Corp., Division of Norton
Co., Troy, N. Y. . . . or for more information check CP
2004 on handy form, pages 2 and 3.)

**Assure
Flexibility**

in **your** plant



with **BROWN
FINTUBE**

**sectional hairpin
heat exchangers**

● You'll get almost unlimited flexibility to meet changes in
duties, plant re-arrangements, etc., with Brown Fintube Sectional Heat
Exchangers. By simply adding a few sections to your existing exchangers,
or removing a few sections, or changing the series-parallel manifolding,
change-overs can be made easily and quickly. You can be operating
efficiently on almost any new or different duty, on short notice, with a
minimum of expense for new equipment, and without obsoleting any
of your former facilities.

For utmost efficiency and economy use Brown Fintube Sectional Heat
Exchangers throughout your plant. **Write for Bulletin No. 481.**

THE BROWN FINTUBE CO.

Elyria, Ohio

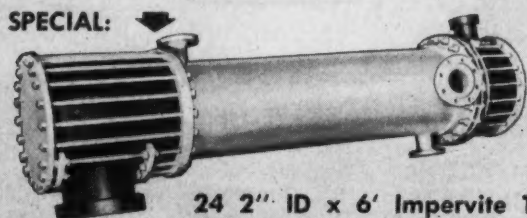
Sectional Hairpin Heat Exchangers
Tank Suction and Line Heaters
Fintube Heaters for Bulk Storage Tanks
Indirect Process Air Heaters
Fintube Heaters for Processing Tanks
Integrally Welded Fintubes for Any Heating,
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When inquiring check CP 2005 on handy form, pgs. 2-3

IMPERVITE HEAT EXCHANGERS

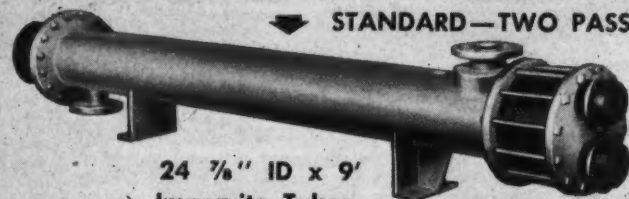
SPECIAL:



24 2" ID x 6' Impervite Tubes

ALL SIZES—ALL PURPOSES

STANDARD—TWO PASS:



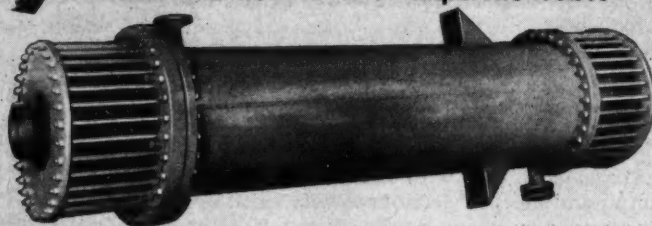
24 2" ID x 9' Impervite Tubes

SPECIAL—TWO PASS:

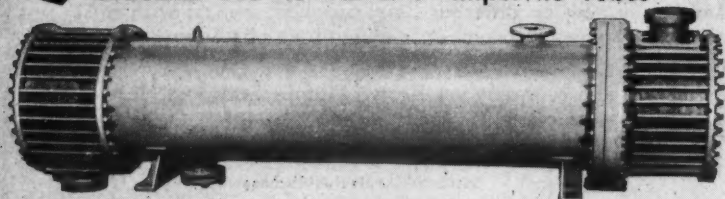
38 2" ID x 9' Impervite Tubes
Impervite Shell

ALL CHEMICALLY IMPERVIOUS

SPECIAL: 222 2" ID x 9' Impervite Tubes



SPECIAL: 148 2" ID x 9' Impervite Tubes



Ask for Our Detailed Illustrated Spec. Sheets

Falls Industries, Inc.

AURORA ROAD - SOLON, OHIO

When inquiring check CP.2006 on handy form, pgs. 2-3

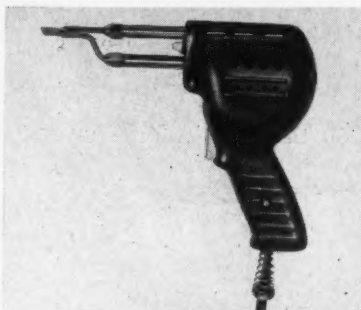
CONSTRUCTION

**Is ready for soldering
in 3-5 seconds . . .**

gives hot tip simply by pressing
soldering gun trigger

Uses: For variety of intermittent
soldering jobs.

Features: Transformer type solder-
ing gun heats instantly (in 3 to 5
sec) when trigger is pressed; cools



Provides "trigger-quick"
heat for soldering

when trigger is released. Built-in
spot light illuminates work. Long tip
reaches spots otherwise inaccessible.

Description: Lightweight, balanced,
operates on 250w, 110-120v AC.
Manufacturer reports device lasts in-
definitely. Soldering tips are easily
replaceable if desired.

(Product of Wen Products, Inc., Dept.
CP, 5806 Northwest Highway, Chi-
cago 31, Ill. . . or for more informa-
tion check CP 2007 on handy form,
pages 2 and 3.)

**Gives tight, lasting seal
that resists action
of chemicals . . .**

asbestos packing is serviceable
from -100 to 500°F

Uses: For tight, lasting seals of
stuffing boxes at low gland pressure.

Features: Impregnated braided as-
bestos packing can't be attacked by
nor contaminate industrial acids, al-
kalis, or solvent. Packing is service-
able from -100 to 500°F and will
not "seize" shaft or spindle, manu-
facturer reports.

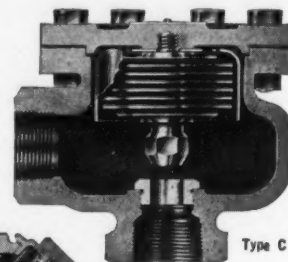
Description: Flexrock 401 braid-
over-braid asbestos packing is impreg-
nated with Teflon throughout. It is
furnished in continuous lengths, square
cross section, in sizes from 1/8 to 1"
by 1/16" increments.

(Product of Mechanical Packing Div.,
Flexrock Company, Dept. CP, 3670-A
Cuthbert St., Philadelphia 4, Pa. . .
or for more information check CP
2008 on handy form, pages 2 and 3.)

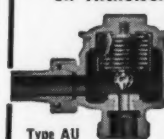
CUT DRYING CYCLE from 24 to 16 HOURS

with Nicholson Steam Traps

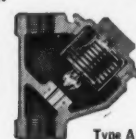
A large processor, by substituting Nicholson thermo-
static traps for mechanical units, cut important drying
operations from 24 to 16 hours, and refining cycles
from 5 to 4 hours. They credit the higher and more
even temperatures
Nicholson traps ef-
fect. 5 types for
every purpose;
sizes 1/4" to 2";
press. to 225 lbs.
See why leading
plants are increas-
ingly standardizing
on Nicholson's.



Type C



Type AU



Type AHV

BULLETIN 152

181 Oregon St.
Wilkes-Barre, Pa.

W. H. NICHOLSON & CO.

TRAPS • VALVES • FLOATS

When inquiring check CP 2009 on handy form, pgs. 2-3

STOP

It's NEW!

RUST
Instantly!

— dries in 10 minutes

• Paint over damp or dry surfaces

• One coat covers

• Paint over new or rusted metal

• Resists chemical fumes

Try the remarkable new RUST INHIBITOR
FD-425 See for yourself how painting
costs can be reduced as much as 50%.
One coat does the job on rusted or clean
metal; resists weather, salt air, chemicals;
stops rust action—FAST! Investigate!

Write for
Literature



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FLOORING • ROOFING • SPECIAL PAINTS

Field Representatives Coast to Coast

When inquiring check CP 2010 on handy form, pgs. 2-3

CHEMICAL PROCESSING

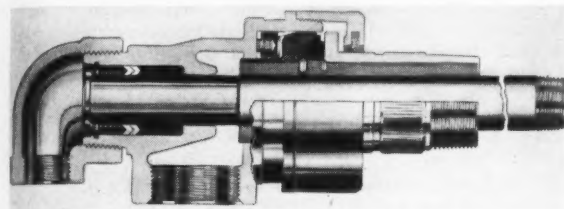
**No lubrication for rotary joint
is required, no bearings . . .**

special design permits rotating sleeve to find its own center irrespective of eccentricity

Uses: As a fixture between steam supply line and rotating drum or heating element.

Features: Joints require no lubrication since they have no bearings. Rotation takes place on a flat surface of a non-porous carbon disc, the opposite side of which is a ball seat. This design permits rotating sleeve to find its own rotating center irrespective of the eccentricity of the roll or threads.

Description: Joints are capable of handling up to 250 lb steam pressure and with temperatures from -200 to



Revolving joint has stationary or rotating siphon

+500°. Of short overall dimensions, joints are made in sizes from 1/2 to 5", inclusive. Shape of carbon eliminates breakage because of its tendency to compress in case of shock, instead of separating. Seal inside casing is a spring-seated Teflon wedge against a chrome-plated surface; face of rotating sleeve is also chrome-plated and ground for hardness.

Entire sealing assembly is one complete unit that can be removed without taking either rotating member from the roll. Sold as separate units for manufacturers of equipment and therefore can be designed as part of their equipment.

The YX type has stationary siphon, and the YR has the rotating siphon, in which case both rotating members rotate on their own centers without strain. Joints require no flexible hose for mounting, although if the hose is required it can be used.

(Product of Rotherm Engineering Company, Inc., Dept. CP, 4911 W. Irving Park Rd., Chicago 41, Ill. . . or for more information check CP 2011 on handy form, pages 2 and 3.)

**Fabrication, plating of metals
simplified greatly using
surface conditioners . . .**

effective for removing soils and oxides on finished ferrous, aluminum in single operation

Two surface conditioners for finished metal parts should be of interest to those concerned with metal fabrication as well as plating. First, Ferr-O-Niel 985 is a carefully balanced non-corrosive acid surface conditioner for ferrous metal parts that is effective in removing light oil, soil, normal oxides and smut without in any way changing the tolerances of the metal or build up hydrogen imbrittlement.

Alum-I-Niel 978 is an acid type surface conditioner for effectively removing soil and oxides from SO and ST aluminum sheets and extruded metal in a single operation prior to welding. It is reported to yield consistently good welds.

(Products of the Nielco Laboratories, Dept. CP, PO Box 4703, Detroit 19, Mich. . . or for more information check CP 2012 on handy form, pages 2 and 3.)

APRIL, 1952



the
STETSON
is
part
of the
man

JOHN B. STETSON COMPANY
PHILADELPHIA 22, PA.

Mr. C. C. Lucas
Howell Electric Motors
Broad Street Suburban Station
Philadelphia, Penna.

Dear Mr. Lucas:

It is not every day these days that a buyer can express his thanks and appreciation to a vendor for prompt compliance with scheduled delivery dates.

I want to do just that to you and, through you, to the Howell Electric Motors. While I am at it I wish to mention, also, that we are very pleased with the quality of workmanship and cleanliness of design of your motors. Because our own product owes its national eminence to quality, we feel peculiarly fitted to recognize that standard in others.

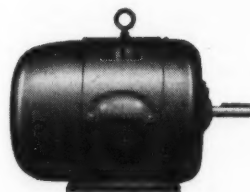
With appreciation for your individual interest and the valuable cooperation of your factory, I remain

Yours very truly,

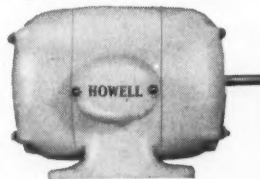
A. Kennedy, Jr.
A. Kennedy, Jr.
Plant Engineer

AKjr/mc
MORE PEOPLE WEAR STETSON HATS THAN ANY OTHER BRAND

HOWELL MOTORS are part of the **STETSON**



HOWELL Type K Motor. Offers constant performance in the presence of dirt, dust, fumes and moisture. Sizes from 3 to 150 H.P. at 1800 R.P.M. Either vertical or horizontal mounting.



HOWELL Sanitary Motors meet the most exacting standards of the dairy and food industries. They contain no pockets, cracks, or crevices. Available for vertical or horizontal mounting.

We think you, too, will appreciate Howell's attention to your electric motor problems. Howell engineers are always ready with technical assistance on motors in the standard NEMA frame sizes or with specially designed motors if your situation requires them.

So, on the tough jobs, on every job, consult Howell — manufacturers of industrial type motors from 1/6 to 200 H.P. since 1915. Contact the Howell representative in your city or write to us direct.



HOWELL MOTORS
HOWELL ELECTRIC MOTORS CO., HOWELL, MICH.
Precision-built Industrial Motors Since 1915

When inquiring check CP 2013 on handy form, pgs. 2-3

G B Carries Through With You *All the Way*



—from design discussion in your plant with your personnel to assure an installation best suited to your particular requirements.



—to careful fabrication by skilled workers in our modern plant, under supervision of a management with a broad background of experience in the production of all types of Chemical processing equipment.



—through complete provision for safe shipment en route and easy installation in your plant—anywhere in the world.

GOSLIN-BIRMINGHAM

MANUFACTURING CO., INC.

BIRMINGHAM, ALABAMA

CHICAGO: F. M. deBeers and Associates, 20 N. Walker

When inquiring check CP 2014 on handy form, pgs. 2-3

CONSTRUCTION

**Cleans and prevents rust
on non-ferrous metals
in same operation . . .**

effective life of treatment is reported as long as 6 weeks

Uses: Effective for removing soil from the surfaces of all non-ferrous metals without staining or etching. While cleaning, it simultaneously imparts a rust-inhibiting feature to the metal.

Has proven successful in cleaning prior to painting. Usually pieces can be painted directly after rinsing and drying.

Features: Cleaned steel parts have resisted rust for periods up to 6 weeks under normal plant conditions. Even under the most unfavorable conditions, maker reports that rust protection for 2 or 3 days can be expected.

Description: Pennsalt EC-51 is an organic material possessing high emulsifying characteristics. It can be used either in concentrated or diluted form and can be applied both by spray and immersion methods. In spray cleaning, a dilution from 50:1 to 100:1 will apply to most cleaning and rust protection applications encountered.

EC-51 is non-caustic, non-explosive, and non-toxic.

(Product of the Pennsylvania Salt Mfg. Co., Dept. CP, 1000 Widener Bldg., Philadelphia 7, Pa. . . or for more information check CP 2015 on handy form, pages 2 and 3.)

**Waterproofs masonry
without preventing
air passage . . .**

colorless silicone-base liquid penetrates up to $\frac{3}{8}$ "

Uses: Waterproofing exterior masonry surfaces, to wit: brick, concrete, stucco, stone, unglazed tile or asbestos shingle.

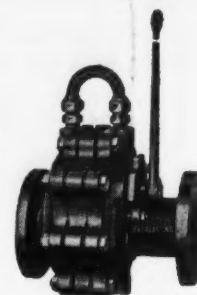
Features: Has no effect on appearance or texture of wall surfaces.

Description: Silicone-base water repellent, Dam-Tite, is a colorless liquid which is stated to penetrate masonry surfaces up to $\frac{3}{8}$ ". It effects waterproofing without plugging the pores or preventing air passage.

It is reputed to prevent oxidation with its resulting unsightly efflorescence. Dam-Tite can be either applied by brush or spray.

(Manufactured by Speco, Inc., Dept. CP, 7308 Associate Ave., Cleveland 9, Ohio . . . or for more information check CP 2016 on handy form, pages 2 and 3.)

Valves That Keep VISCOUS MATERIALS Flowing Freely



When you handle coal tar products, asphalts, resins, waxes, molten sulfur, varnish and other materials which congeal at ordinary temperatures, you won't be troubled with clogged valves if you use EVERLASTING Steam Jacketed Valves.

The ample jacket space of these valves surrounds the ports as well as the body . . .

provides extensive heating surface and correct temperature to insure fluidity. Besides, the design of the valves is quick acting . . . non-wedging . . . and self-grinding . . . and they have the straight-through flow and lasting tightness that have made EVERLASTING Valves famous for over 40 years. Write for complete information.

EVERLASTING VALVE CO., 49 Fisk Street, Jersey City 5, N. J.
Trade Mark "EVERLASTING" Reg. U. S. Pat. Off.

EV-344A

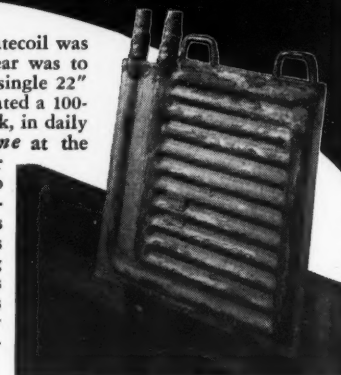
Everlasting Valves

for everlasting protection

When inquiring check CP 2017 on handy form, pgs. 2-3

NO DOWNTIME in over a year using a PLATECOIL in a parkerizing tank

The only time this Platecoil was removed in over a year was to take its picture. The single 22" x 23" Platecoil has heated a 100-gallon Parkerizing tank, in daily use, *without downtime* at the Lycoming Spencer Division of Avco Corp. Built of Electro-Polished Stainless Steel, the Platecoil has required no cleaning or repairs. Platecoils will replace pipe coils at a savings in any heat transfer application.



Send for complete technical manual and descriptive Bulletin No. P54.

PLATECOIL

KOLD-HOLD MFG. CO.
LANSING & MICHIGAN

When inquiring check CP 2018 on handy form, pgs. 2-3

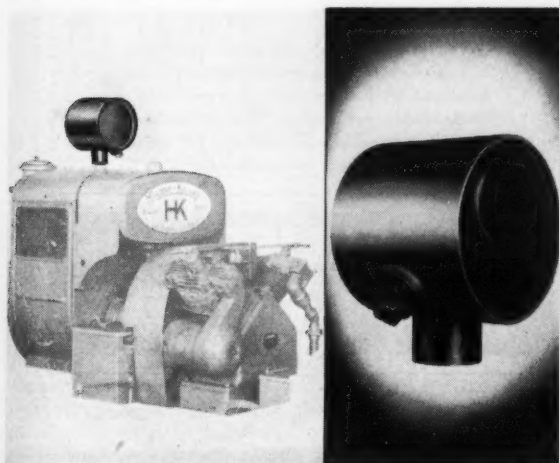
**Danger from fire is minimized
with spark arrester
on engines . . .**

carbon particles, sparks are trapped from combustion gases in exhaust

Uses: On all types of internal combustion engines (tractors, compressors, road equipment, oil well power plants, etc.) where it is imperative to eliminate the danger of fire.

Features: Light-weight spark arrester that also offers moderate silencing catches carbon particles and sparks in exhaust gases as they enter the intake nipple, and throws them by centrifugal force into properly located traps.

Description: Traps are fitted with exterior plugs for easy, periodic cleaning. Models are designed for vertical



Spark arrester eliminates fire dangers from exhaust gases

mounting and are of all-welded heavy-duty steel construction throughout. Models are available with either slip-over or threaded nipples.

(Product of Kittell Muffler & Engineering Co., Dept. CP, 915 S. Santa Fe Ave., Los Angeles 21, Calif. . . . or for more information check CP 2019 on handy form, pages 2 and 3.)

**Patched concrete floors
take heaviest traffic
right after patching . . .**

no waiting 36-50 hours usually required for concrete to set; all materials ready-mixed

Uses: Patching material for concrete floors which can be applied in a few minutes and put into full, unrestricted use immediately.

Features: Eliminates waiting 36 to 50 hours, the setting time usually required when floors are patched with ordinary concrete.

Description: To repair a floor, ruts are first swept out to remove loose material, primed with a special primer, and then Instant-Use is shoveled-in to fill the void. Patch is next tamped flush with floor level, primed, and finally sealed with a powder. Immediately after this procedure heavy traffic can be run over it. All materials used are ready-mixed and applied directly from container as supplied.

(Instant-Use is a product of the Flexrock Company, Dept. CP, Filbert & Cuthbert, West of 36th, Philadelphia 4, Pa. . . . or for more information check CP 2020 on handy form, pages 2 and 3.)

THE BIG LINE OF VACUUM PUMPS

COMPOUND PUMPS

Model	Free air displacement
Model CVM 3153	2 cu. ft. per min.
Model CVM 3534	5 cu. ft. per min.
Model CVM 556	15 cu. ft. per min.
Model CVM 8610	46 cu. ft. per min.

SINGLE STAGE PUMPS

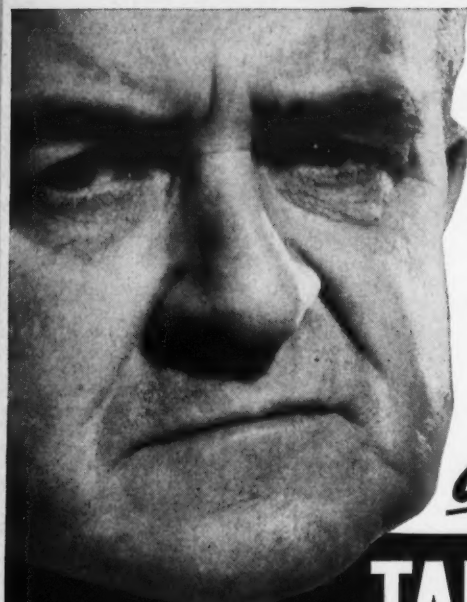
Model	Free air displacement
Model VSM 556	13 cu. ft. per min.
Model VSD 778	27 cu. ft. per min.
Model VSD 8811	47 cu. ft. per min.
Model DVD 8810	110 cu. ft. per min.
Model DVM 12814	218 cu. ft. per min.
Model DVD 14918	311 cu. ft. per min.
Model DVD 141418	486 cu. ft. per min.
Model DVD 181420	702 cu. ft. per min.
Model DVD 272034	1600 cu. ft. per min.

Kinney

**VACUUM
PUMPS**

There's a Kinney Pump for every vacuum requirement. Write for Bulletin V-518. Kinney Manufacturing Co., 3573 Washington St., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Philadelphia, Houston, New Orleans, Los Angeles, San Francisco, Seattle. FOREIGN REPRESENTATIVES: Gen'l Engineering Co., Ltd., Radcliffe, Lancs., England. • Horrocks, Roxburgh Pty., Ltd., Melbourne, C. I. Australia • W. S. Thomas & Taylor Pty., Ltd., Johannesburg, South Africa • Novelectric, Ltd., Zurich, Switzerland • C.I.R.E., Piazza Cavour 25, Rome, Italy.

When inquiring check CP 2021 on handy form, pgs. 2-3



*"I'm a
hard
man
to
convince!"*

ACID-PROOF TANTALUM

Chemical Processing Equipment

"But it didn't take me long to discover what a sound, economical investment it was to use Fansteel ACID-PROOF TANTALUM equipment in my chemical operations. These are some of the reasons that convinced me . . ."

Acid-Proof: Not merely "corrosion-resisting." Very few acids, even at high temperatures, have any effect upon tantalum.

High Strength: Tantalum is not subject to thermal shock and will stand the strain of great temperature changes.

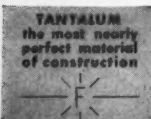
High Thermal Efficiency: Heating, cooling and condensing efficiencies are surprisingly high.

Saves Cooling Water: Tantalum tapered condensers (shown at right) require a minimum amount of cooling water, at all seasons and under all operating conditions.

Maintenance Economy: Tantalum equipment is built for long dependable life, freedom from shutdowns, replacement and repair. It usually pays for itself in maintenance savings.

Fansteel engineers are at your service for consultation on any corrosion or heat transfer problem where tantalum can be used economically to your best advantage.

USE TANTALUM WITH ECONOMY for most acid solutions, corrosive gases or vapors; not with HF, alkalis or substances containing free SO₃.



Acid-Proof **TANTALUM**

22401

Fansteel Metallurgical Corporation NORTH CHICAGO, ILLINOIS, U.S.A.

When inquiring check CP 2022 on handy form, pgs. 2-3

CONSTRUCTION

**.003" electrical insulation
serviceable at temperatures
up to 180°C . . .**

silicone saturated asbestos sheet
good electrically, physically

Uses: Electrical insulation.

Features: Material is .0025-.003" thick and serviceable at operating temperatures of 180°C — placing it in the Class "H" Insulation category.

Description: Novabestos consists of pure asbestos sheet, completely saturated and coated with silicone resin. Final product is about 97% pure asbestos, and 3% organic material. Long asbestos fibers contribute good physical properties.

Properties are tabulated below:

Dielectric Strength, vpm, 2" electrodes	350
Tensile Strength, per inch width warp filler	10.0 3.5
Tearing Strength, gm, warp filler	10 9
Weight, lb/sq yd	0.12

Novabestos is currently available in roll and sheet form up to 20" in width.

(Product of the Irvington Varnish & Insulator Company, Dept. CP, 6 Argyle Terrace, Irvington 11, N. J. . . or for more information check CP 2023 on handy form, pages 2 and 3.)

**Flexible or rigid, pipes
of plastic resist
corrosion . . .**

weight is only about 1/10 that
of metal piping

Uses: For general piping of pure or corrosive liquids and gases in chemical processing, drainage, petroleum production, mining operations, water wells.

Features: Provides positive resistance against rot, rust, and electrolytic corrosion, weighs only 1/10 as much as equivalent metal pipe. Connections are made easily with plastic fittings cemented without special tools.

Description: Smooth interior surface provides maximum transmission, delivering up to 40% more liquid than ordinary pipe, manufacturer reports. Plastex pipe comes in standard pipe sizes from 1/2 to 6". Coils are made up to 400' long, straight lengths 25' long.

(Product of The Plastex Pipe and Extrusion Co., Dept. CP, Columbus, Ohio . . . or for more information check CP 2024 on pages 2 and 3.)

IN WIRE-MESH PRODUCTS

LET **JELLIFF** DO IT!

For 70 years we've been weaving Wire Mesh. And a good part of that time we have also been making things of Wire Mesh for people who find it is cheaper, easier and generally more satisfactory to "let Jelliff do it."

From big Dipping Baskets to tiny precision filters — from fuel strainers to what-is-it gadgets — JELLIFF's Custom Production Department turns out fabricated Wire-Mesh products at speed, price and precision that mean lower costs and a stronger competitive position for our many customers.

If you buy or make wire-mesh assemblies as components of your own products and have not yet had an estimate from Jelliff, write today for details. No obligation, even if you enclose a blueprint for us to figure on. Address Department 27.

THE C. O. **JELLIFF** MFG. CORP.
DIPPING BASKETS
LEAKMESH
RESISTANCE WIRE
SOUTHPORT
WIRE MESH PARTS
WIRE CLOTH
STRAINERS • FILTERS
CONNECTICUT

When inquiring check CP 2025 on handy form, pgs. 2-3

**Atlantic Flexible Metal
Hose Offers**

FREEDOM FROM BREAKDOWNS

**due to VIBRATION,
MISALIGNMENT,
EXPANSION,
CONTRACTION.**

—and is better for conveying steam, gases, molten chemicals, oils, refrigerants, tars, asphalt, alkalies, gasoline, light or semi-solids. Seamless or Interlocking construction in steel, stainless steel, bronze, 1/8" — 36" I.D. with appropriate fittings.

Write for Bulletin 20D. See our Catalogs in Sweet's Files for Product Designers and Mechanical Industries.

Atlantic Metal Hose Co., Inc.

106 W. 64th St., New York 23, N. Y.

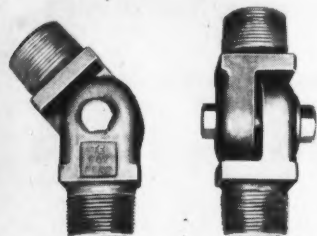
When inquiring check CP 2026 on handy form, pgs. 2-3

**Permits angular adjustment
of electrical devices
on overhead beams . . .**

with 90° swing, fitting has strength to support equipment weighing up to 1500 lb

Uses: For vertical suspension of overhead type electrical equipment from sloping or arched roof members.

Features: With 90° adjustment, unit permits angle mounting on wall posts or columns. When used overhead it can support equipment weighing up to 1500 lb. Facilitates balancing of floodlights in vertical or radial position so that lights can be focused independently.



Permits angular mounting or adjustment
of electrical equipment

which join the halves. Parts are keyed into position after adjustment by tightening draw bolt. When set, fitting will hold its position up to the maximum load capacity of the component parts.

Adjustable angle fitting is available in three types. Light-duty model has 3/4" male pipe threads and is designed for units weighing under 60 lb. Medium-duty fitting with 1" male pipe threads handles loads from 60 to 100 lb. Heavy-duty model with 1 1/4" male pipe threads is capable of suspending weight up to 1500 lb.

(Product of Thompson Electric Company, Dept. CP, 1111-88 Power Ave., Cleveland 14, Ohio . . . or for more information check CP 2027 on handy form, pages 2 and 3.)

**Makes quick work of coupling
or dismantling set-ups
for piping . . .**

cast aluminum coupler withstands 300 lb psi working air pressure

Uses: For fast coupling of piping systems that are often dismantled and moved to other locations.

Features: Tested to handle 300 psi working air pressure, separate coupler made of cast aluminum is easily and quickly attached or detached from pipe. Coupling is easy to store or to move from job to job. No tools or cement required.

Description: Quick-Lok coupler latch is designed for safety. Latch ring insures positive latching during stops and starts. Coupler is adaptable to aluminum, steel, plastic tubing OD. Gasket, with double pressure seal, is available in rubber or neoprene, and can't blow out under high pressure or be pushed out by insertion of pipe. Coupler locks with pin and ring. Fits tightly over plain end tubes.

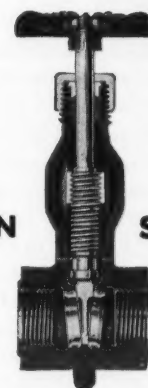
Dual 1 1/4" standard pipe thread connection outlets are provided to allow the attachment of two hoses from each coupler.

(Product of R. M. Wade & Co., Dept. CP, 106 S.E. Hawthorne Blvd., Portland 14, Ore. . . . or for more information check CP 2028 on handy form, pages 2 and 3.)

INSIST ON THE ORIGINAL UNMATCHED "KING-CLIP" VALVE

AVAILABLE IN 21 PATTERNS FOR HUNDREDS OF SERVICES

Install the original Lunkenheimer "King-clip" wherever you need small and medium-size iron gate valves built to stand up under hard usage. It has been paid the high compliment of imitation—but is still unparalleled for workmanship and outstanding features. The distinctive steel clip provides unusual strength; the hand wheel has extra torque for easier, tighter closing; the famous Stemalloy* bronze stem travels in a special bronze bushing—never touches iron. Both Iron-Body-Bronze-Mounted and All-Iron designs are available. Ask your distributor for details.



IRON STEEL • BRONZE

WRITE FOR "King-clip" Circular 561, which will help you select the right "King-clip" Valve for your specific piping problem. The Lunkenheimer Company, Box 360C, Cincinnati 14, Ohio.

* Patented Alloy

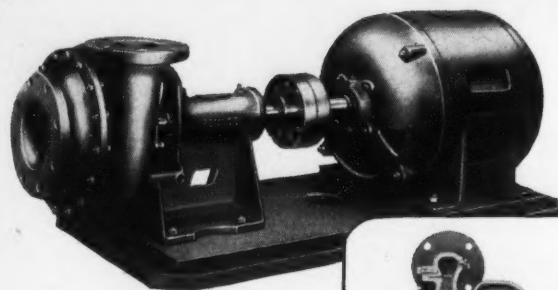
Fig. 1640
I. B. B. M.

LUNKENHEIMER

THE ONE *Great* NAME IN VALVES

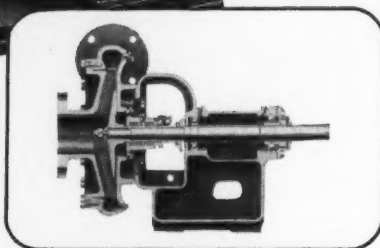
When inquiring check CP 2029 on handy form, pgs. 2-3

Goulds single stage... open impeller centrifugal

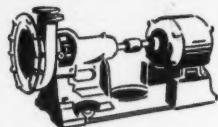


GOULDS Fig. 3169

Stuffing box provided with lantern-type seal ring and with tapped openings. In corrosive liquid pumping, seal may be connected to a fresh liquid supply or fitted with a special lubricator containing a nonsolvent lubricant. Mechanical seal may be substituted for stuffing box where desired.

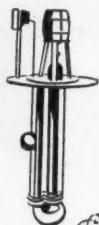


Other GOULDS Pumps for the Chemical Industry



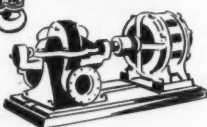
GOULDS Fig. 3705

Stainless steel pumps for handling acid and alkaline liquids. Capacities up to 600 G.P.M. Heads up to 160 ft.



GOULDS Fig. 3047

Nonclogging impellers of these vertical sump pumps will handle water containing large solids or fibrous materials.



GOULDS Fig. 3450

These double-suction, single-stage Goulds centrifugals will handle up to 15,000 G.P.M. Heads up to 500 ft. Send for Bulletin 721.2.

One pump that does many different jobs

- General Water Service
- Transfer
- Processing
- Slurries
- Circulation
- Factory Wastes
- And Many Others

This low cost Goulds Fig. 3169 centrifugal pump offers tremendous versatility. It is as much at home in industrial processing as it is in handling general water service or plant wastes. Its simple, sturdy construction assures long service life with a minimum of maintenance.

Compactly built, this pump is a real space saver. Its modern hydraulic design assures high operating efficiency with relatively low power consumption. Available in a wide range of sizes for both motor and belt drives. Capacities to 1080 G.P.M. Heads to 290 ft. For complete details and specifications, write for Bulletin 720.4.



Goulds

PUMPS INC.
Seneca Falls
New York

When inquiring check CP 2030 on handy form, pgs. 2-3

CONSTRUCTION

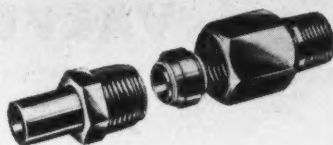
Tight seal is assured by special seat . . .

is included in line of corrosion-resistant fittings

Uses: For coupling tubes carrying gases or liquids.

Features: Self-centering seat insures leak-proof, wedge-type seal, even if tube is assembled off center. Reinforcing Teflon rings provide double-seal for seat to prevent escape of dangerous gases or liquid losses.

Description: Stainless steel fittings are included in standard selection of elbows, tees, unions, and connectors



Tube fittings with self-centering seat

for tubing sizes up to and including 3/4", with couplings for larger diameters handled on special order. Fittings are for 5 S and 10 S tubing.

(Product of The Special Screw Products Co., Dept. CP, 5445 Dunham Rd., Bedford, Ohio . . . or for more information check CP 2031 on handy form, pages 2 and 3.)

Fluorescent fixtures have soft light, long life . . .

are fabricated from cold rolled steel

Uses: For office or industrial lighting applications.

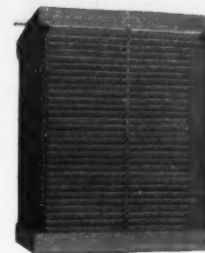
Features: Fixtures provide soft, well-diffused light soothing to the eyes, and properly shielded from all angles. Especially adapted for uses where high humidity or bad atmospheric conditions are prevalent.

Description: Manufacturer's fixtures are fabricated from cold rolled steel and from gages heavier than laboratory requirements. Manufacturer reports Model 5500 Biltmore is 85.5% efficient by ETL analysis. Fixtures incorporate qualities of economy, beauty, ease of installation and maintenance. All components are ETL and UL approved.

(Product of Gibson Manufacturing Co., Dept. CP, 1919 Piedmont Circle, N.E., Atlanta, Ga. . . or for more information check CP 2032 on handy form, pages 2 and 3.)

Naturally the Best!

MARLEY Natural Draft Cooling Towers



● **MARLEY DESIGNED** to minimize drift but to take advantage of air flow!

● **BALANCED SPRAY SYSTEM** with patented Marley nozzles!

● **RUGGED CONSTRUCTION** of heart red-wood lumber.

● **DELIVERY** when and where you want it from stocks in many cities. Prefabricated for easy field assembly.

Call your local Marley Representative

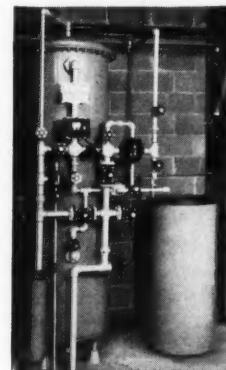


The Marley Company Inc.

Kansas City 5, Missouri

When inquiring check CP 2033 on handy form, pgs. 2-3

ULTRA-DEIONIZER Produces Highest Quality Mineral-Free Water



This remarkable single tank, mixed-bed ion exchange unit produces deionized water for less than 25 cents per 1000 gallons (based on 10 grain water).

FEATURES

- **Replaces Distillation or Evaporation** — at 1% to 10% of the cost
- **Removes All Ionizable Impurities** — including CO₂ and silica
- **Up to 44% Greater Capacity** — double-check design
- **Requires Minimum Space** — lower investment cost

Write for Bulletin 512

ZEOLITE WATER SOFTENERS

New Bulletin 611 describes "Double-Check" type water softener that delivers up to 44% more soft water. Also covers complete line of equipment and treatment for any water conditioning need. Write for your copy.

ELGIN

SOFTENER CORPORATION

180 North Grove Avenue, Elgin, Illinois
WATER CONDITIONING SINCE 1908

When inquiring check CP 2034 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Heavy coating seals, protects against corrosion at temp to 400°F . . .

asbestos-asphalt compound remains flexible to effect sealing; adhesive strength is high

Uses: Heavy, semi-viscous plastic-type maintenance coating capable of withstanding temperatures up to 400°F.

Recommended for repairing composition roofs, flashings, caulking chimneys, breaks and joints in concrete or brick walls, windows, coating boiler walls, replacing window panes, mending skylights, covering old metal, lining worn gutters, sealing down loose roofing materials, and many other general maintenance applications.

Features: Non-hardening, it always remains flexible to effect a corrosion-resistant and sealing coating. Adhesive strength is high and shrinkage is nil.

Description: Stalastic is an emulsion type coating consisting of selected asbestos fibers, asphaltum, and special oils. Available colors include black, tile red, and gray. Can be readily applied by trowel. Coverage is about 12 square feet per gallon when applied 1/8" thick.

After drying it is firm, tough, flexible and resists abrasion. Coated surfaces are fire retardant.

(Product of the Eagle-Picher Sales Company, Dept. CP, American Building, Cincinnati 1, Ohio . . . or for more information check CP 2035 on handy form, pgs. 2 and 3.)

Louvers are opened instantly when roof ventilator is operated . . .

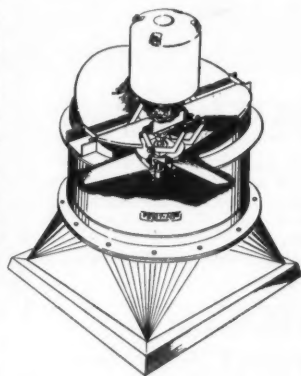
are designed to lock shut when fan is stopped to keep out rain, snow, drafts, thieves

Uses: Roof type ventilator removes exhaust air and fumes from plant at rate of 5000 to 45,000 cfm, depending on size of blower unit.

Features: Mechanically actuated louvers open fully and automatically when fan starts; are locked in closed position as soon as fan is stopped.

This design prevents entrance of snow, eliminates drafts or "stack effect" when unit is not operating and prevents back-draft or entrance of outside air.

Unit offers reduction in fire hazard by eliminating draft through roof in event of fire. Because louvers lock closed, burglar and sabotage protection is afforded.



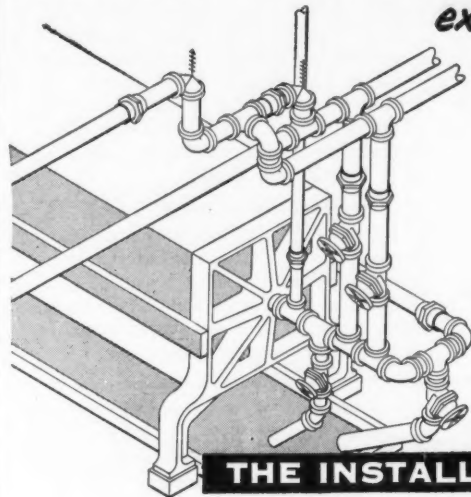
Has mechanically actuated louvers

Description: Posit-Aire Ventilator ranges in size from 24 to 48". Special sizes, top or bottom motor mountings, or belt-driven units for use in corrosive atmospheres can be furnished. Interiors and mechanisms can be supplied with protective coatings against moisture and corrosion. Engineered for field erection, unit can be supplied without motor or base for economy in shipping, storage, and handling.

(Product of Tripar Products, Inc., Dept. 106, 14641 W. Eleven Mile Road, Royal Oak, Mich. . . . or for more information check CP 2036 on handy form, pages 2 and 3.)

Do Your Valves Last This Long?

...on Semi-Solids, for example



THE INSTALLATION

Crane Packless Diaphragm Valves handling liquid clay to filter presses. Onondaga Pottery Co., Syracuse.

THE HISTORY

Plug cocks were used in this service before replacing with Crane Diaphragm Valves. But the cocks lasted no more than 2 to 8 weeks. They quickly cut out at the plug and body, damaged by the gritty particles and highly erosive effects of liquid clay at 140 psi. pressure.

After 11 months' uninterrupted service, Crane Diaphragm Valves showed no significant wear or damage resulting from normal operating conditions. They sharply reduced maintenance and replacement costs over plug cocks, and were approved as standard equipment on filter press piping.

The Complete Crane Line Meets All Valve Needs. That's Why

More Crane Valves Are Used Than Any Other Make!

CRANE VALVES

CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

When inquiring check CP 2037 on handy form, pgs. 2-3

VALVE SERVICE RATINGS

SUITABILITY:

Fluid Can't get into working parts

MAINTENANCE COST:

None yet - Big savings indicated

CORROSION-RESISTANCE:

Excellent

SERVICE LIFE:

5 times longer already - no sign of wear

OPERATING RESULTS:

No interruptions - Easier operation - Lower cost

PRICE:

Good

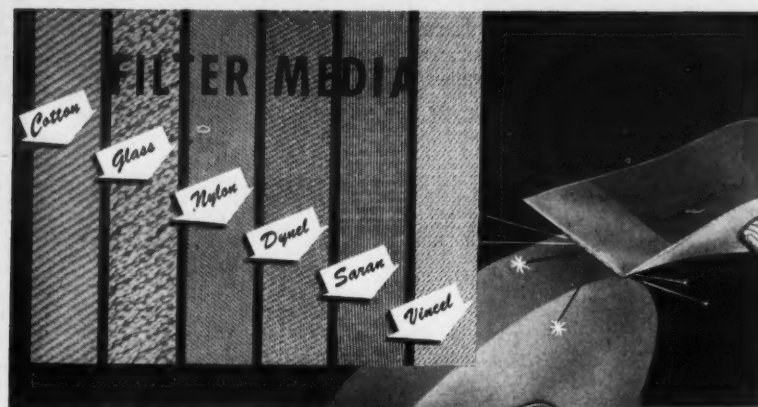
AVAILABILITY:

Stock item - Crane

THE VALVE

In Crane Iron Body Packless Diaphragm Valves, the Neoprene diaphragm acts as bonnet seal only; is not subject to crushing and rapid wear. Separate disc with Neoprene insert shuts off flow even should diaphragm fail. Choice of fully Neoprene lined or unlined valves. Highly recommended for many common and corrosive services; sludges, slurries, etc. See your Crane Catalog or Crane Representative.





NO AX TO GRIND HERE!

We Manufacture All Types of
FILTER CLOTH

NYLON
COTTON
GLASS
ORLON** acrylic fiber
RUBBER COVERED SCREENS

DYNEL
VINCEL***
SARAN
VINYON N*

*TM—Union Carbide & Chemical Co.
**TM—E. I. du Pont de Nemours Co.
***TM—Applied for—NFM

As manufacturers of an extensive line of Filter Cloths our analysis of and recommendations for your filter cloth problems will be unbiased... we have "no ax to grind" regarding any particular cloth.

Each of the cloths listed above offers different operating advantages. Each type has its own range of chemical resistance, its own temperature limits and its own degree of resistance to moisture, molds, fungi and bacteria. With such a variety we are in position to recommend a filter cloth that will give you the best service for your particular application.

In writing for literature and test samples please tell us about your problem.

NFM Weavers of Industrial Filter Media for over Forty Years
The National Filter Media Corp.

General Offices & Mills: New Haven 14, Conn.
Western Office & Factory: Salt Lake City 1, Utah

Sales Offices—Representatives

Chicago, Ill. Cincinnati, Ohio Houston, Texas Oslo, Norway Johannesburg, South Africa
2627 West 19th St. Roselawn Center Bldg. 1406 Second National Bank Bldg. Nicolai Fris Edward L. Bateman

When inquiring check CP 2038 on handy form, pgs. 2-3

CONSTRUCTION

Insulates against high voltages and temps...

plastic film does not absorb moisture and is non-flammable

Uses: Electrical insulation involving high temperatures, frequencies and voltages.

Features: Does not absorb moisture, is non-flammable and resists all solvents with the exception of certain boiling chlorinated solutions.

Description: "Scotch" brand PTF Film is manufactured by a process that is stated to produce fewer air entrapments in the film than any previous insulation material of its type. Two layers of 3-mil film, for example, form a surface insuring dielectric protection at a 5000 volt level.

It resists cold flow under pressure, has a tensile strength of 7800 pounds per square inch, and has some stretch with moderate winding tension. Film, which is made from Teflon, is available in 36 yard rolls in widths from 1/4 to 6 inches, and in thicknesses of 3, 5, 10 and 15 mils.

(A product of Minnesota Mining and Manufacturing Co., Dept. CP, 900 Fauquier St., St. Paul 6, Minn. . . or for more information check CP 2039 on handy form, pages 2 and 3.)

Design meets every clay digging job or assignment...

graduated throttle valve gives a range of control

Uses: Clay digging.

Features: Air cooling system which circulates exhaust air through front head for cooler handling, while blowing muck and dirt from retainer parts.

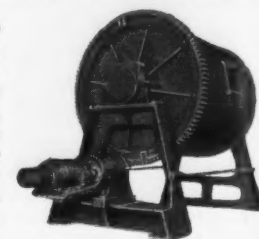
Description: Thor No. 16 pneumatic clay digger weighs 20 lb and is 19 1/2" long. It offers optional inside or outside trigger, closed retainer or latch retainer and choice of five chucks. The two types of retainers can be locked in any of four positions for right or left hand operation. Closed type retainer has a rubber bumper to absorb impact shock.

A graduated throttle valve produces a range of control under all conditions encountered. Accessories available include clay spades or scoops, flat picks, saw tooth chisels,moil points, narrow chisels and chisel blanks.

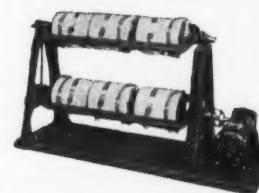
(Manufacturer is Independent Pneumatic Tool Co., Dept. CP, 175 N. State St., Aurora, Ill. . . or for more information check CP 2040 on handy form, pages 2 and 3.)

One Quart...3000 Gallons... What Grinding...Mixing... Blending Capacity Do You Need?

Colors, pigments, paints, enamels, varnishes, printing inks, coatings, minerals, metals, chemicals, plastics, drugs and pharmaceuticals, cosmetics, foods... whatever you have to grind and blend for your processes... will be handled at top effectiveness, in minimum time and at the lowest possible over-all cost in



ABBÉ ENGINEERING MILLS



... available in the capacity you require, from the one quart single jar porcelain jar mill through a range of jar mills, jar rollers, ball and pebble mills up to 3000 gallons and larger.

Write for the Abbé Jar Mill and Pebble Mill Catalogs.

ABBÉ ENGINEERING CO. 46 CHURCH STREET
NEW YORK 7, N. Y.
Makers of
ABBÉ ENGINEERING Ball, Pebble and Jar Mills

When inquiring check CP 2041 on handy form, pgs. 2-3



More BIG Jobs
...for TRENT
"Folded-and-Formed"
Heating Elements

TELEVISION-

Custom-built "Folded-and-Formed" Heating Element Racks used in 180 ft. long Television Tube Annealing Oven. Continuous operation under critical temperature control.

CHEMICAL PROCESSING

Preparing to install custom-built "Folded-and-Formed" Heating Element Racks in one-half of Split Jacket for 19 ft. Vertical Tower used in special chemical processing at 1200°F.

Write for Bulletin 81-T

"Folded-and-Formed" Heating Elements are also available in Standard Racks, 12" x 12", for easy installation in your own equipment. 5-Year Guarantee.

TRENT INC.
Electrically Heated Industrial Equipment
235 LEVERINGTON AVE. PHILA 27 PA

When inquiring check CP 2042 on handy form, pgs. 2-3

CHEMICAL PROCESSING

**Maintenance, wiring simplified
in oil-tight control station . . .**

sliding internal hinge arrangement extended to include six, nine, twelve, and sixteen unit sizes

Uses: To provide oil-tight protection for control units used with machine tool service.

Features: New line supplements the one, two, three, and four unit enclosures already available, featuring a hinged cover to facilitate wiring and maintenance of the individual oil-tight control units. Sliding internal hinge arrangement makes it possible to obtain advantages of hinged cover construction without sacrificing the effectiveness of the oil-tight seal between the box, gasket, and cover. Hinge pins are easily removed when mounting control units to the cover.

Description: Designed specifically for machine tool service, the cast enclosure is provided with a composition gasket between the box and cover to insure an oil-tight seal. Both the box and the individual units mounted within are constructed so that cutting oils, coolants, moisture, and dust found in machine tool applications cannot enter. Boxes are provided with bosses for conduit entry at convenient locations.

A complete line of individual oil-tight control units including pushbuttons, selector switches, selector pushbuttons, pilot lights, attachments, and accessories is available for mounting in these enclosures. Individual units and the enclosures are available separately for assembly by the customer, if desired, or they may be purchased completely assembled to the customer's specifications.

(Type T control station is a product of the Square D Company, Dept. CP, 4041 N. Richards St., Milwaukee 12, Wis. . . or for more information check CP 2043 on handy form, pages 2 and 3.)

**Low temperature brazing flux
suitable for joining Ti, Zr
and their alloys . . .**

torch brazed joints obtained with average tensile strengths of about 44,000 psi

Uses: Joining titanium, zirconium and their alloys.

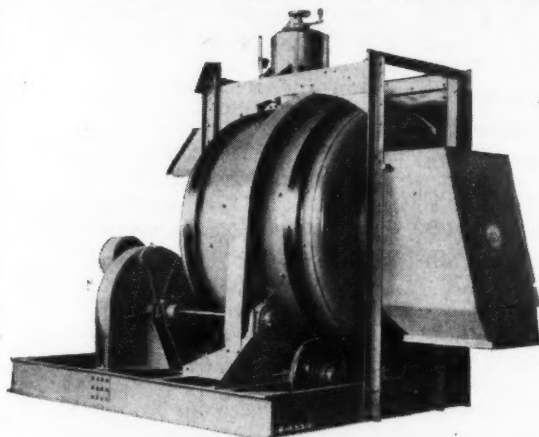
Features: Relatively low fluid temperature of compound.

Description: Special Handy Flux has a fluid point of about 1185°F. Since titanium will react with both oxygen and nitrogen, generous applications of flux are needed both on the joint and beyond it. At brazing temperatures it tends to be opaque and as it becomes loaded with titanium oxides, it will turn blue-black to black. Once the solder wets and starts to flow, the flux will flow rapidly.

Brazed joints of titanium may be appreciably more brittle than joints of other conventional metals because there is more than the usual amount of solder diffusion, resulting in a zone of brittle, intermetallic compounds at the interfaces. Excessive brittleness is avoided by making the joint as quickly as possible and by not prolonging the heating once the solder has flowed. Lower temperature of Handy Flux makes this procedure easier to follow.

In torch brazed butt joints, manufacturer has obtained average tensile strengths of about 44,000 psi, with some joints as high as 52,000 psi. Lap joints with a lap of more than three times the thickness may break outside the joint.

(Manufactured by Handy & Harman, Dept. CP, 82 Fulton St., New York 7, N. Y. . . or for more information check CP 2044 on handy form, pages 2 and 3.)

**He can't stand that slow mixing cycle!**

A WORTHINGTON CHEMICAL MIXER, a unique machine incorporating all the features and advantages brought about during nearly a century of experience in designing and building mixers for all purposes. Chemical mixers equipped with measuring tank for use in various chemical applications. Standard sizes to 110 cu ft or 3 tons per batch.



Hold it, bud. There's an easier way out! We've got a mixer than can boost your daily output as much as 10 per cent. It's the Worthington chemical mixer with engineered blade design—a mixing action that's faster than any we know of. It saves time with every batch, mixes thoroughly, and eliminates these other big problems as well:

THE CORRODED DISCHARGE CHUTE—The Worthington discharge chute is out of the mixer during mixing time. Proper balance makes manual control of chute easy. Pneumatic controls also available.

THE WOBBLY DRUM ROLLER—Worthington drum rollers are of genuine carwheel metal, ground to exact diameter. Compensation for wear to permit perfect centering is accomplished by easy adjustment of drum-roller shafts.

THE HEAVY HORSEPOWER CONSUMER—Worthington's clean, anti-friction construction with specially designed parts assures minimum possible horsepower consumption.

YR.2.6

SEND THIS COUPON TODAY to learn more about how to reduce mixing time with a Worthington chemical mixer.

Worthington Pump and Machinery Corporation
Industrial Mixer Division
Dunellen, New Jersey

NAME.....

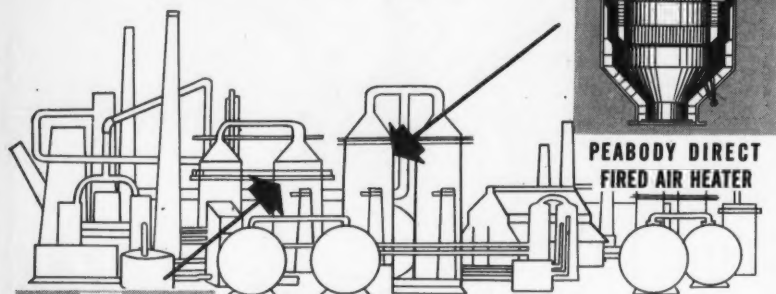
POSITION.....

ADDRESS.....

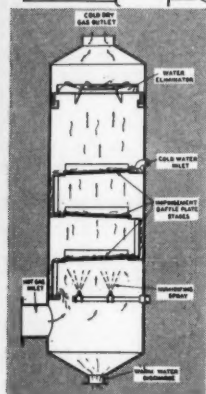
CITY.....ZONE.....STATE.....

When inquiring check CP 2045 on handy form, pgs. 2-3

extra efficiency



PEABODY DIRECT
FIRED AIR HEATER



PEABODY GAS SCRUBBER

in processing

...PEABODY DIRECT FIRED AIR HEATERS FOR

—high-pressure, high-temperature heating of gases, and for use in processing or in solving unusual combustion problems. Available in capacities of 1,000,000 to over 100,000,000 B.T.U./hr. and for operating pressures ranging from atmospheric to eight atmospheres. Compact, job-engineered design requires minimum field installation. Bulletin 600A.

PEABODY GAS SCRUBBERS FOR

—cleaning, cooling, and absorbing gases, as well as recovery of valuable by-products and elimination of atmospheric pollution so often encountered in processing. Patented Impingement Plate offers positive, controlled scrubbing action with *no moving parts*. Bulletin 203.

PEABODY
ENGINEERING CORPORATION

580 FIFTH AVENUE • NEW YORK 19, N. Y.

Manufacturers of all types of combustion equipment, direct-fired air heaters, gas scrubbers, coolers, and absorbers.

OFFICES IN PRINCIPAL CITIES

PEABODY LIMITED • LONDON, S.W.1, ENGLAND

910

When inquiring check CP 2046 on handy form, pgs. 2-3

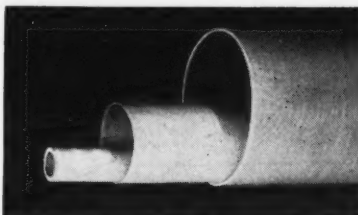
CONSTRUCTION

**Resists heat, chemicals,
tube wall section
is 0.03" . . .**

tubing material is suitable to use with nearly all chemicals

Uses: For protection and insulation of chemical processing piping, corrosion-proof conduit, electrical coil forms, and other electrical and electronic applications.

Features: Glass fiber is combined with Teflon to provide rigidity and strength even in tubing with a wall



section of 0.03". Combination is resistant to heat and nearly all chemicals, manufacturer reports.

Description: Can be produced on pilot plant basis, on order, in various diameters and wall thicknesses.

(Product of Resistoflex Corporation, Dept. CP, Belleville, N. J. . . . or for more information check CP 2047 on handy form, pages 2 and 3.)

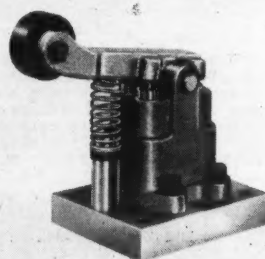
Cam-operated valve for low volume . . .

cam-operated mechanism is four-way valve with long lever

Uses: For low-volume applications using a mechanically operated valve.

Features: No. 636 is a 1/4", four-way valve with a long lever. Lever travel is less than 1".

Description: Model is a small, rugged version of manufacturer's line



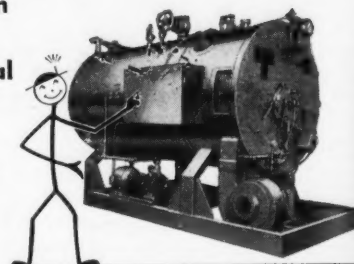
of cam-operated valves. Excluding the cam roller, new unit is less than 4" high and has a 3 by 3 1/2" base.

(Product of Ross Operating Valve Co., Dept. CP, 120 E. Golden Gate, Detroit 3, Mich. . . . or for more information check CP 2048 on handy form, pages 2 and 3.)

ACCESSIBLE! THAT'S THE AMESTEAM GENERATOR FROM EVERY ANGLE

Eye-Level Controls . . .

Protected from
Dirt, Water
and Accidental
Damage . . .
And Look
at the Space
Underneath
Shell, too!



EVERYTHING'S Easy-To-Get-At!

10 to 500 h.p. — 15# to 200# w.p.
OIL or GAS

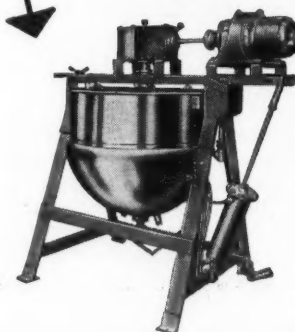
AMES IRON WORKS
BOX D-4, OSWEGO, N.Y.

Builders of Better Boilers Since 1848

When inquiring check CP 2049 on handy form pg. 2-3

LEE headquarters for
the Standard and Special Designs

CORROSION-RESISTANT KETTLES



Available in sizes up to 500 gallon capacity to meet every processing need. Easy to clean and keep clean, they are practical and meet all sanitary regulations. All Lee kettles are available with hydraulic cylinders where your own water line provides the necessary operating power to safely control tilting kettles and tilting agitators in agitator kettles.

Our new descriptive bulletins sent on request.

LEE METAL PRODUCTS CO., INC.
418 PINE STREET, PHILIPSBURG, PA.

All Lee Kettles are made to A.S.M.E. Code

When inquiring check CP 2050 on handy form, pgs. 2-3

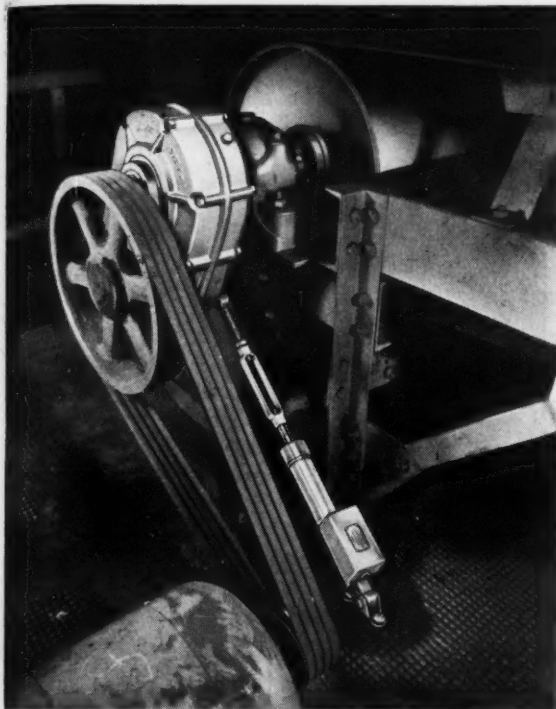
CHEMICAL PROCESSING

New addition extends range of shaft-mounted speed reducers from 1 to 43 horsepower . . .

series includes single and double reduction units with output speeds from 12 to 110 rpm

Uses: Double reduction, shaft-mounted speed reducer with capacity of 43 horsepower and output speed ratings from 12 to 110 revolutions per minute.

Features: Newest addition to this manufacturer's line of speed reducers, which now includes eleven units (di-



43-hp speed reducer mounted on the shaft of a solid steel head pulley of a sand belt conveyor. The anchoring arm is equipped with the Tri-Matic overload release. In event of overload the release trips. Instant action loosens the belts, cuts off the power, gives alarm

vided into two series: single and double reduction) covering the capacity range from 1 to 43 horsepower.

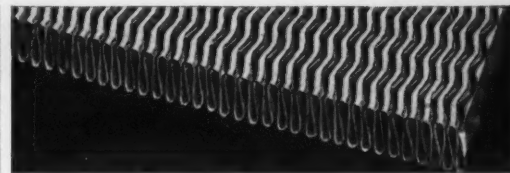
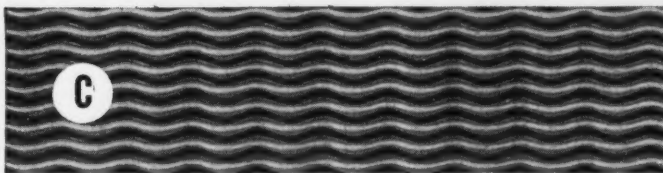
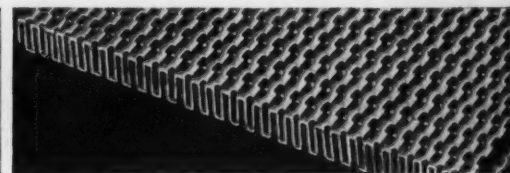
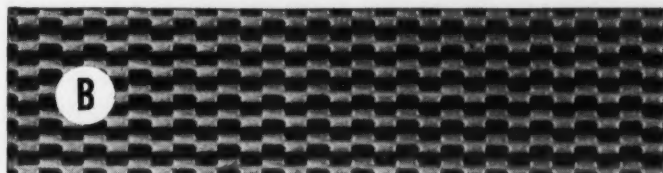
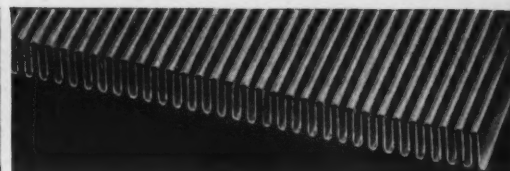
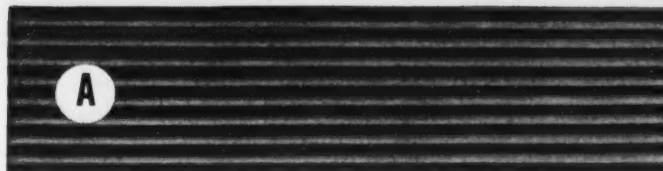
Description: No. 7 reducer is shaft mounted and anchored with a torque arm which fastens to any fixed object. A turnbuckle enables fast and easy adjustment of belt tension. Installation is simplified since no foundation or flexible couplings are needed.

(Product of the Dodge Manufacturing Corporation, Dept. CP, Mishawaka, Ind. . . . or for more information check CP 2051 on handy form, pages 2 and 3.)

Shows sheet metal facilities management and finances

Twenty-page booklet describes and illustrates facilities, management, and finances of sheet metal products plants in Illinois and Pennsylvania. Starting with the shearing room, booklet takes reader on tour of various metal fabricating operations, right to the shipping room.

"Craftsmen in Sheet Metal Production" is issued upon letter-head request to Lyon Metal Products, Inc., Dept. CP, Aurora, Ill.



Three of the many types of fin section available.

TRANE Brazed Aluminum Heat Exchangers Offer Wide Choice of Heat Transfer Surfaces for Greater Design Flexibility

With Trane Brazed Aluminum Heat Exchangers, you choose from a great variety of surfaces in solving exactly your heat transfer problems. They may be straight and continuous (A). They may be serrated (B). Or they can be of herringbone design (C). With these basic designs, exactly the right surface can be selected to provide the correct ratio of heat transfer to pressure drop characteristics.

Many further variations of these general types are practical. The height and the thickness of the fin can be varied. So can the number of fins per inch. In fact, fins with entirely different patterns, heights and number of corrugations per inch can be used side-by-side to handle different fluids in the same exchanger.

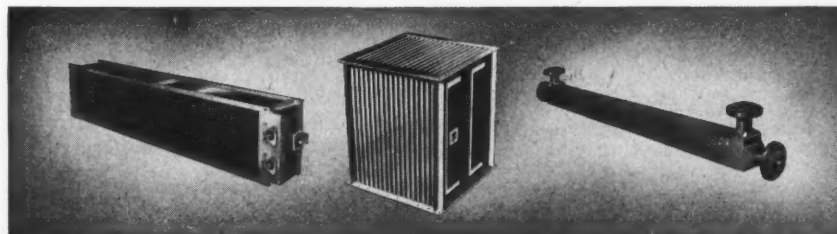
Thanks to this great flexibility you can provide

just the heat transfer, just the pressure drop volume, velocity number and direction of passes you want with Trane Brazed Aluminum Heat Exchangers.

Design flexibility is but one of the many advantages of Trane Brazed Aluminum Heat Exchangers. Compared to conventional exchangers, they produce more heat transfer efficiency in $\frac{1}{4}$ the space with $\frac{1}{2}$ the weight at approximately $\frac{1}{2}$ the cost.

These all-aluminum heat exchangers are rugged, too. They take test pressures up to 1,000 pounds per square inch and temperatures from -300° to 500° F.

Whether the job calls for high or low temperatures or pressures, one stream or many, Trane Brazed Aluminum Heat Exchangers can be the answer. Contact your Trane sales office or write direct.



Here are a few of the many varieties of Trane Brazed Aluminum Heat Exchangers which are now in actual service: 1) A cross flow unit for liquid-to-gas exchange used for condensing

purposes. 2) A cross flow gas-to-gas unit which is used for intercooling for aircraft engines. 3) A counter flow liquid-to-liquid exchanger for high pressure application.

TRANE

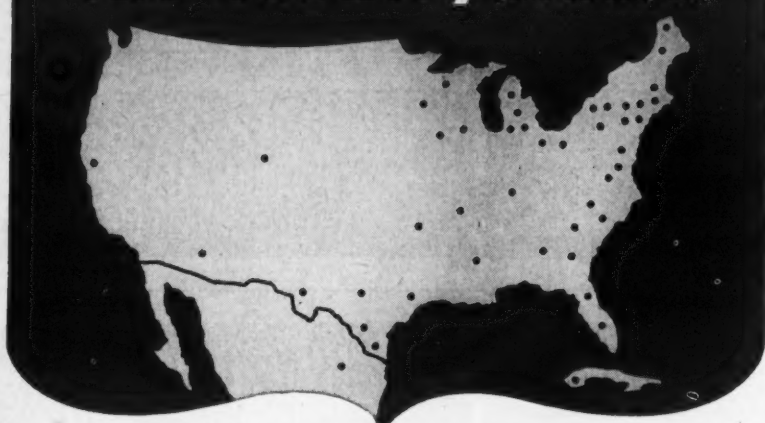
MANUFACTURING ENGINEERS
OF HEATING, VENTILATING AND
AIR CONDITIONING EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS.
Eastern Mfg. Division . . . Scranton, Pennsylvania
Trane Company of Canada, Ltd. . . . Toronto

OFFICES IN 80 U. S.
AND 14 CANADIAN CITIES

When inquiring check CP 2052 on handy form, pgs. 2-3

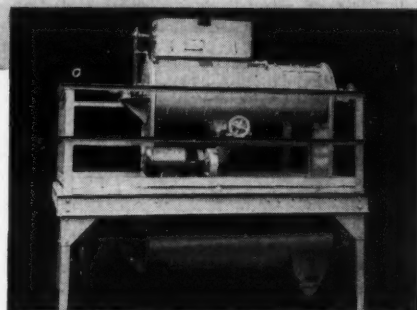
**all over
the country** (and abroad, too)



**INTIMATE BLENDING EQUIPMENT
—BY SPROUT-WALDRON
DOES THE JOB!**

Applications:

**Agricultural Dusts •
Brake Lining and Bat-
tery Case Formulas •
Detergents • Dyes • Pig-
ments, and many other
fine powder blends.**



*Intimate Blending Systems are available in labora-
tory or commercial sizes...capacities up to 60 cu. ft.*

SOUTH CAROLINA . . . "We are greatly pleased with the performance of our Sprout-Waldron Blending System. We believe without a doubt that the dust produced on our equipment surpasses anything else on the market in the South today. Producers of technical toxicants used by us agree with this opinion."

MAINE . . . "To meet peak demands during the dust season, levels as high as nine batches per hour are maintained for limited intervals with the same crew. Equipment must stand up."

GEORGIA . . . "Our production records show five distinct formulas totaling more than 450 tons were blended on our S-W equipment in the last three months, without any mechanical trouble whatsoever."

ARIZONA . . . "Everyone who visits our plant agrees that we have the most compact, efficient system they have yet seen."

PENNSYLVANIA . . . "Visiting representatives from Farm Co-ops in other states unanimously characterized our insecticide dusts as being the finest, most uniform blends they had ever examined."

Use the advice of Sprout-Waldron, Specialists in Intimate Blending, to improve your product... safeguard your personnel... step up production—and increase your profits. Write for Bulletin I-846 today! Sprout-Waldron & Company, Inc., 10 Logan Street, Muncy, Pennsylvania.



SPROUT-WALDRON
INTIMATE BLENDING

219

When inquiring check CP 2053 on handy form, pgs. 2-3

CONSTRUCTION

**Single reduction motor
adjusts easily for
variable speed . . .**

maintain belt tension in proportion to load strain

Uses: For supplying constant power in variable speeds.

Features: Units use single reduction gears that give accurate maintenance of speeds under varying loads and belt tension in proportion to load.

Description: Photo shows 25 hp KFEA type single reduction model with a speed variation of 4:1 and output speeds of 324 rpm down to 81 rpm. Units are also manufactured in speeds of 728 rpm and lower with infinite speed adjustment within the



Speed ranges from 324 to 81 rpm

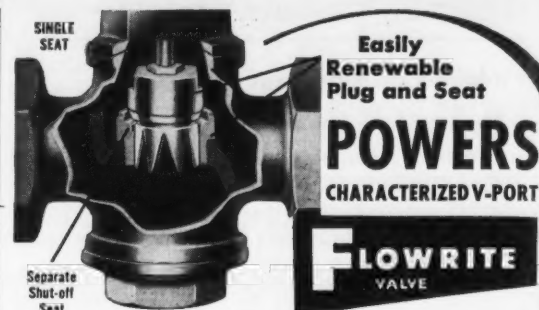
range of 2:3, 3:1, or 4:1. Drives have positive adjustment of pulleys, positive oil seals, single train helical gears, herringbone rotor, and direct-through ventilation. All ratings are available with drip-proof or splash-proof construction.

(Product of Sterling Electric Motors, Inc., Dept. CP, 5401 Anaheim, Telegraph Rd., Los Angeles 22, Calif. . . or for more information check CP 2054 on handy form, pages 2 and 3.)

**Tells what to watch for
when washing metals**

Eight precautionary measures that should be watched when washing metal by machine are discussed in detail in 14-page booklet. Specific materials designed for use in metal-washing machines and the jobs they perform are described. Helpful suggestions on the selection and operation of metal-washing equipment are also incorporated in the text.

"Eight Things to Look for When You Wash Metal by Machine" is issued upon letterhead request to Oakite Products, Inc., Dept. CP, 118F Rector St., New York 6, N. Y.



**Easily
Renewable
Plug and Seat**

POWERS
CHARACTERIZED V-PORT

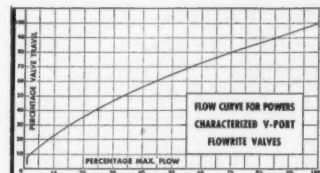
FLOWRITE
VALVE

Gives Better Control with Less Maintenance

SPECIAL FLOW CHARACTERISTICS—High lift V-Port plug provides proportional flow throughout entire lift of stem as shown in chart below.

WIDE VARIETY OF SIZES— $\frac{1}{2}$ " valve available with plugs to give 15%, 30%, 60% or 100% of maximum capacity. Easily interchangeable without removing valve from line.

SUPERIOR DESIGN of stainless steel plug and seat reduces wire drawing, insures longer life and tight shut-off. V-Ports do the throttling, protecting separate shut-off seat. Write for circular (a70).



LOW
HYSTERESIS
EASY TO
ADJUST
EASY TO
INSTALL
EASY TO
SERVICE

(a70)

THE POWERS REGULATOR CO., Skokie, Ill.

When inquiring check CP 2055 on handy form, pgs. 2-3



**SPECIALISTS IN ALL
RESISTANT
PIPING MATERIALS
TO YOUR SPECIFICATIONS**

**PIPE • VALVES
FITTINGS • FASTENINGS**

STAINLESS • ALUMINUM • SARAN

HARD RUBBER • POLYETHYLENE

TYGON • USCOLITE • EVERDUR

FULL RANGE OF SIZES

**Complete Stocks—Prompt Shipment
(Reference No. CP 452)**

RAY MILLER

254 NORTH 10th STREET, NEWARK 7, N. J.
4240 KANAWHA T'PK., SO. CHARLESTON, W. VA.
1210 HAYS STREET, HOUSTON, TEXAS

When inquiring check CP 2056 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Prolongs service of faucet seats and washers; speeds up reseating job . . .

with precision cutter, removable seats can be reformed three or four times

Uses: For reforming removable faucet seats to assure tighter shut-offs.

Features: Reseating job can be done with cutter tool in 3 min as against average time of 28 min for locating and installing a new replacement seat, manufacturer reports. Cutter is so fine that same removable seat can be reformed 3 or 4 times, eliminating the cost of 3 to 4 replacements.

Description: Cutter widens the faucet seat thus increasing surface contact with the washer, resulting in doubling or tripling life of the washer, easier shut-off that reduces wear on the spindle threads and prolongs the faucet life. When used with manufacturer's Bibb Seat Reforming tool set, every type of faucet can be serviced.

In addition to a complete set of removable seat cutters, the tool comes with standard patented saddle seat or raised seat cutters.

Cutter tool set prolongs life of removable faucet seats

(Product of the J. A. Sexauer Mfg. Co., Inc., Dept. CP, 2503-05 Third Ave., New York 51, N. Y. . . or for more information check CP 2057 on hand form, pages 2 and 3.)

Portable cleaner delivers steam blasts as high as 200 psig for fast cleaning . . .

rinse water pressures are up to 400 psig from speedy, safe electric boiler for heavy duty

Uses: For fast cleaning of trucks, buses, and other automotive equipment. Provides steam for cleaning operation and rinse water heating.

Features: Portable, electric model boiler gives steam jet cleaning effectiveness with 200 psi dry steam, detergent as needed, and up to 400 psi for hot or cold rinsing water. Manufacturer reports complete freedom and maximum safety from fire hazards.

Description:

Known as Speedy-electric steam jet cleaner, model JC-50 requires power availability of not less than 30 to 40 kw, 220, 440, or 550v, 3-phase power, and water supply of 250 to 300 gph. Steam is provided by built-

UL-approved boiler quickly when needed for cleaning jobs.

(Product of Livingstone Engineering Company, Dept. CP, 100 Grove St., Worcester 5, Mass. . . or for more information check CP 2058 on handy form, pages 2 & 3.)

Technical data on the revolutionary new

holo-flite*

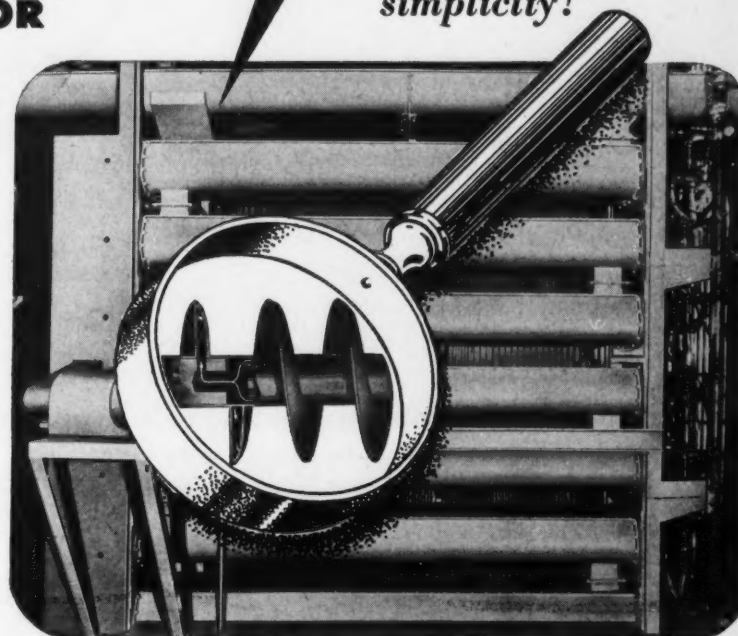
(HOLLOW-FLIGHT)
PROCESSOR

If you have processing operations where slurries, solids, pulps or pastes must be cooled or cooked, be sure to investigate the many unique advantages of the newly-developed HOLO-FLITE Processor before you install any heat-exchange equipment.

Here's the HOLO-FLITE principle . . .

Two or more screw conveyors rotate slowly in a trough. The blades and shaft of each flight of conveyors are hollow, with provision for circulating the heat-transfer agent through them. The product to be cooled or cooked is moved along the trough, being constantly rotated into, around, over and under the conveyor screws as it moves.

Thus, a continuous thermal transfer takes place between the product and the heat-transfer fluid circulating in the blades. The product is cooled or cooked in continuous-flow without the "stop-and-go" losses of batching operations . . . and cooled products can be packaged directly from the HOLO-FLITE discharge—saving space, time and additional handling.



THIS 6-TIER HOLO-FLITE cools 7 tons of cottonseed press cake per hour from 285° to 89°F. in a total floor space of only 28 sq. ft.
(Inset) Enlarged cutaway view of HOLO-FLITE screw showing heat-transfer principle.

Here are typical HOLO-FLITE advantages

The HOLO-FLITE principle is so unique it is setting completely new standards of performance in many ways. For example . . .

*Reg. T.M.

The HOLO-FLITE Saves Space—It requires as little as 1/5th the space of other units of comparable capacity because (1) it has far greater heat-transfer area per cubic foot of space . . . and (2) the flights can be "tiered" as high as desired to give maximum capacity in very small floor areas.

The HOLO-FLITE is Versatile—Processed product can be fluid, pulp or paste—granular, crys-

talline or powdered solid. Heat-transfer fluid can be refrigerant, cooled or ambient water, steam, oil or any other desired fluid, at any normal temperature range.

The HOLO-FLITE is Dust-Free—Its gentle action provides large heat-transfer action without dust and with negligible particle abrasion. Simplifies installations, assures higher quality product.

The HOLO-FLITE is Adaptable—It can easily be designed to handle virtually any capacity by (a) varying the diameter of the screws (7" to 16") . . . (b) varying the length of the screws (8 ft. to 20 ft.) . . . (c) varying the number of intermeshing screws per trough (2, 4, or 6) . . . and (d) varying the number of tiers stacked on top of one another (1 to 10, or more).

The HOLO-FLITE is in daily operation on such typical products as sand, cement, cottonseed cake, soybean meal, borax, salt, sugar, baby foods and many other equally-varied products.

What is your problem? Our engineers will be glad to assist you in making the most of HOLO-FLITE advantages. Write wire, or phone the office nearest you!

Want More Facts? This 8 page booklet describing the HOLO-FLITE in greater detail will gladly be sent on request. No obligation, of course.



WESTERN

Precipitation

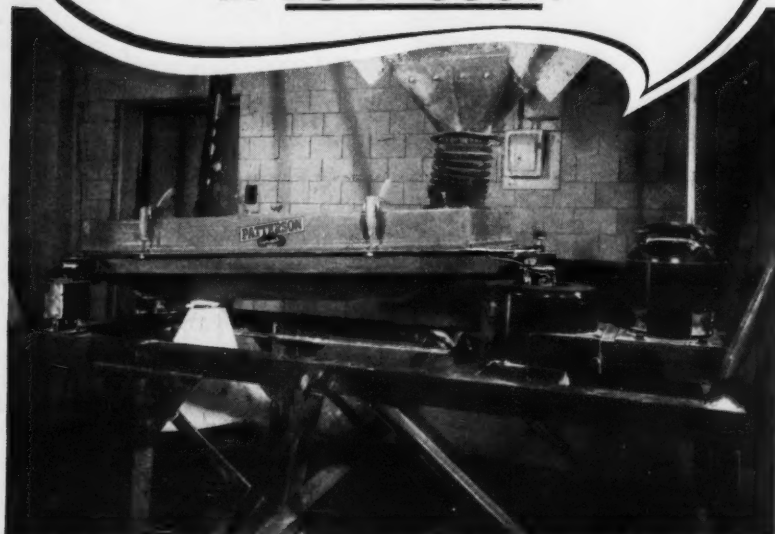
CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 N. LaSALLE ST. BLDG., CHICAGO 2
1429 PEACHTREE ST. N.E., ATLANTA 5 • HOBART BLDG., SAN FRANCISCO 4
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

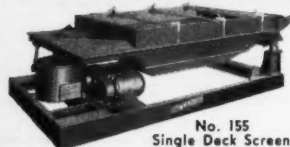
When inquiring check CP 2059 on handy form, pgs. 2-3

Clean, Accurate SCREENING and CLASSIFYING at **LOW COST!**

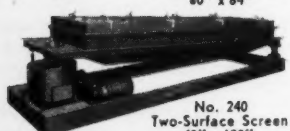


PATTERSON

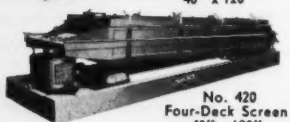
**A SIZE FOR
EVERY NEED**



No. 155
Single Deck Screen
60" x 84"



No. 240
Two-Surface Screen
40" x 120"



No. 420
Four-Deck Screen
40" x 120"

"Gyro-centric"
SCREENS

Hundreds of Gyro-centric Screens in daily use throughout the chemical processing industries meet today's demands for cleaner, more accurate separations of wet or dry materials.

Adaptable to the widest range of screening requirements, Gyro-centric Screens are built in several types and 20 standard sizes, with from one to four screening surfaces. Let us show you how a standard or special Patterson Screen can exactly meet your needs!

Richard L. Caraway
President

The Patterson Foundry and Machine Company
East Liverpool, Ohio, U. S. A.

NEW YORK BOSTON BALTIMORE PHILADELPHIA PITTSBURGH DETROIT CINCINNATI
CHICAGO ST. LOUIS HOUSTON DENVER LOS ANGELES SAN FRANCISCO SEATTLE

The Patterson Foundry and Machine Company, (Canada) Limited
Toronto, Canada
MONTREAL

When inquiring check CP 2060 on handy form, pgs. 2-3

CONSTRUCTION

**Cleans machine parts
as well as delicate
instruments . . .**

electrical and mechanical units
precision cleaned

Uses: For cleaning instruments
and parts of aircraft, radio and tele-
vision, meters, time clocks, etc.

Description: Three windows on
motor support permit observation of
four gal tanks or basket dryer. Basket



Multiple instrument cleaning in 4 gal
tanks and 3 unit dryer

has three monel mesh, removeable
compartments for multiple cleaning
operations. Inner steel tube centers
automatically over tanks and dryer.

Tanks have 10" diam and height.
Basket is 7 3/16" diam and 3 3/4" deep.
Machine's overall size is 23 1/4 x 26 1/4
x 26" and is powered by ball bearing
motor on AC or DC.

(Product of Zenith Manufacturing
and Chemical Corporation, Dept. CP,
52 Beckman St., New York 38, N. Y.
. . . or for more information check
CP 2061 on handy form, pages 2 & 3.

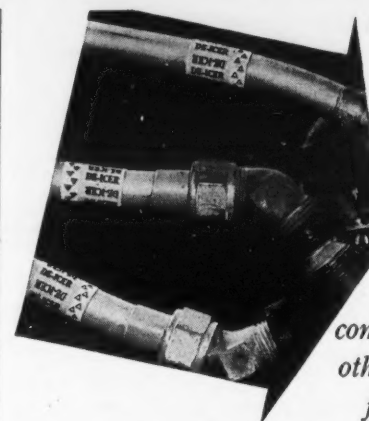
**Announce motor line
that is smaller
and lighter . . .**

some models weigh 51% less
than types replaced

Uses: On pumps, fans, blowers,
compressors, oil burners, motorized
tools, etc.

Features: Smaller and lighter than
previous models — weigh as much as
51% less per horsepower. Recom-
mended for all-angle operation. Leads
are of braidless neoprene — adding
to flexibility and insulating strength.

Description: Manufacturer's frac-
tional horsepower Form G motors are
available in open drip-proof and total-
(Continued on page 184)



**new...
efficient
method of
marking
fuel, oil,
gas, hydraulic,
water, oxygen,
compressed gas and
other industrial
flow lines**

Speed production, maintenance and repair opera-
tions with E-Z Code Fluid Line Markers. Exten-
sively used in the aviation industry, E-Z Codes are
now being used as flow-line markers in many indus-
trial applications.

E-Z Codes are pressure-sensitive and are applied
without moistening with fingertip pressure. They
will not pop, peel or curl even in extreme changes
of heat and humidity. They are available in stand-
ard symbols and codes for all types of flow-lines.
They conform to the new international AND-10375
as well as AAF-27643 and can be produced to your
size and printing specifications. Learn the facts on
E-Z Code Fluid Line Markers.

SEND FOR SAMPLES AND DETAILS

**E-Z CODE SELF-ADHESIVE
MARKERS**

Western Lithograph Co. Dept. CP-4, 600 E. Second Street,
Los Angeles 54, Calif., Box 3804, St. Louis 22, Mo.

When inquiring check CP 2062 on handy form, pgs. 2-3



**JOHNSON
Rotary Pressure
JOINTS**

The Johnson Joint has solved many design and production
problems as nothing else can. And the Type L, shown above,
is helping to fit it into more applications all the time. It has
lugs cast on body to permit simple rod support, an arrange-
ment that both simplifies installation and assures proper align-
ment. Completely packless, self-lubricating and self-adjusting,
the Type L Johnson Joint is used on calendars, dryers, mills,
etc. — wherever steam or liquids must be admitted to rotating
machine parts.

Write for new catalog



The Johnson Corporation

826 Wood St., Three Rivers, Mich.

When inquiring check CP 2063 on handy form, pgs. 2-3

CHEMICAL PROCESSING APR

**Compactly carries, stores
welder's tanks
tools, etc. . . .**

niches prevent cylinders from rolling or turning when moved on handy truck

Uses: For moving or storing welding equipment, including two cylinders.

Features: Cradles each oxygen and acetylene cylinder in its individual niche, thereby preventing them from rolling or turning when being moved.

Description: Framework of welder's truck is all-welded constructed of heavy angle iron and sheet metal with tubular handles. Metal wheels are 24 by 2". Overall height of truck is 48", width 29". Tool-box for torches, tips,



Welder's truck is all-welded angle iron construction

etc., is located between handles for instant use. Swivel type construction keeps tool box level at all times. Handles are provided with cross-bar on which torch hanger may be mounted. Two convenient hooks are welded on handles for hanging hose when not in use. Strong safety chain is provided for anchoring cylinders securely.

(Product of the Palmer-Shile Co., Dept. CP, 16016 Fullerton Ave., Detroit 27, Mich. . . . or for more information check CP 2064 on handy form, pages 2 and 3.)

**Below-grade leaks in masonry
under hydrostatic pressure
stopped in 30 seconds . . .**

fast-setting water-repellent liquid mixes with concrete

Uses: Water repellent for below-grade masonry.

Features: Reported to stop direct leaks against hydrostatic pressures.

Description: Dasquik is an extremely fast-setting liquid. It has an initial setting time of 15 seconds, and a final setting time of 30 seconds when mixed with fresh, plain Portland cement.

(Product of the Dasco Company, Inc., Dept. CP, Baltimore 31, Md. . . . or for more information check CP 2065 on handy form, pages 2 and 3.)

APRIL, 1952

FLOWLINE

TRADE MARK

CORROSION-RESISTANT WELDING FITTINGS



Reducers, stub ends, and caps are standard items of FLOWLINE corrosion-resistant pipe welding fittings. They are formed cold, seamless, by our exclusive process that puts the metal in the best condition for corrosion resistance. These fittings are made and normally stocked in various schedules—in sizes 1/2" through 12"—in Stainless Steel Types 304, 316, and 347; Monel, Nickel, and Inconel. Other corrosion-resistant metals can also be supplied.

During the national defense program we are cooperating with other manufacturers by producing special shapes in corrosion-resistant metals. The sections of cylindrical shapes shown on the background are representative. In many instances available production facilities include equipment for cold forming, annealing, cleaning, and passivating. Size limits—length 24" max., diameter 24" max.; wall thickness—1/8" through 3/4".

WELDING FITTINGS CORP.
NEW CASTLE, PENNSYLVANIA

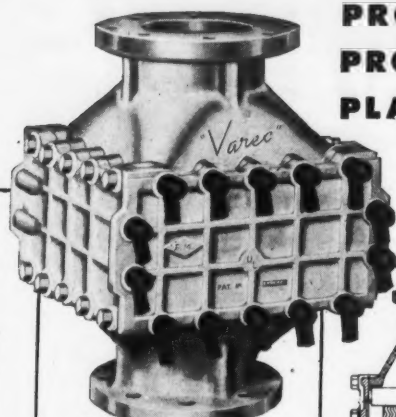
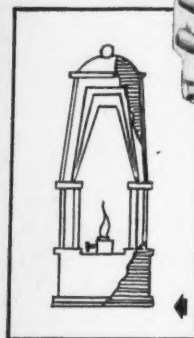
World's Largest Manufacturer of Stainless Welding Fittings

When inquiring check CP 2066 on handy form, pgs. 2-3

THIS MODERN

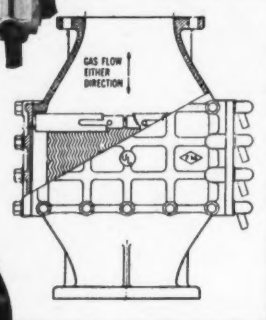
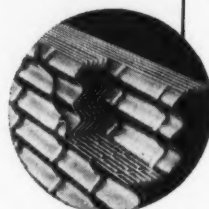
"Davy's Lamp"

**PROTECTS
PROCESSING
PLANTS**



1815

1951



"VAREC" Fig. No. 50
Flame Arresters

Listed by
Underwriters' Laboratories
Approved by Associated
Factory Mutuals Laboratories
and other governing agencies

In 1815 Sir Humphrey Davy first applied the principle of separating flammable gases from open flames by means of a copper screen. The result was the "Davy's Lamp" which gave underground coal miners a chance for survival.

"VAREC" FLAME ARRESTERS utilize this age-old basic principle of heat transfer in protecting plants, equipment and lives against fire and explosion wherever gas or flammable liquids are stored.

They stop burning gas in piping from rapidly propagating thus preventing fire and explosion. Heat of the flame is dissipated through the many surfaces of the multiple corrugated aluminum plates within the unit. Resultant heat loss, plus the tortuous passageways through which the flame would have to pass, stops flame propagation just as the copper screen did in the "Davy's Lamp."

"Varec" Flame Arresters are a low cost investment in the utmost safety for your plans . . . consult your "Varec" representative or write direct.

NF 2

**THE VAPOR RECOVERY
SYSTEMS COMPANY**

COMPTON, CALIFORNIA, U. S. A.

Cable Address: VAREC COMPTON USA (All Codes)



When inquiring check CP 2067 on handy form, pgs. 2-3

CONSTRUCTION

(Continued from page 182)

ly enclosed fan cooled models in Types K (polyphase), KC (capacitor start), KH (split phase), and KCP (permanent split capacitor). They will be offered in a complete range of speeds, horsepower, voltages and frequencies.

Base and shell of the Form G are of welded steel, and the end shields are die cast. Switch assembly is designed as a part of the stator shell so that all connections are made independently of the end shield. This eliminates possibility of broken leads or insulation damage.

It is stated that the improved double-end ventilation keeps the Form G open drip-proof motor cool under continuous loads and deters harmful accumulation of dirt inside the motor.

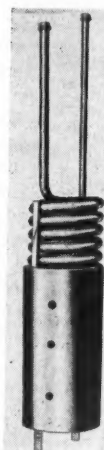
Various components (Glyptal varnish, Formex wire) of the Form G allow it to withstand moisture, oils, mild acids, alkalis and aging.

(Making the announcement is General Electric, Dept. CP, Schenectady 5, N. Y. . . or for more information check CP 2068 on handy form, pages 2 and 3.)

Flow accumulator aids in heating oils, other fluids . . .

preheater is adapted for 14 1/2" manholes on storage tanks

Uses: For heating heavy oils and other liquids before their entrance into suction lines.



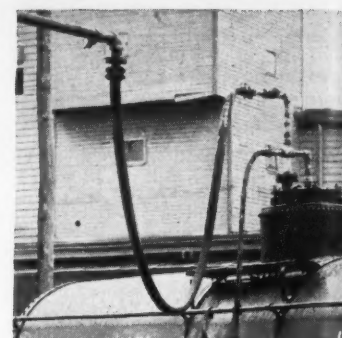
Features: By use of a special flow accumulator, load is taken off suction pump. Unit is completely tested with 400 psi air pressures under water after fabrication.

Description: "Hot-Spot" preheater is a coil assembly within an all-steel shell which is then inserted into a bulk storage tank. It is designed for 14 1/2" manhole. Preheater rests on bottom of the tank. Suction pipes, and inlet and outlet pipes for heat (either steam or hot water) go through the manhole cover. Proper length inlet and outlet pipes to fit any tank diameter are furnished.

(Product of the Rempe Co., Dept. CP, 340 N. Sacramento Blvd., Chicago 12, Ill. . . or for more information check CP 2069 on handy form, pages 2 and 3.)

NAME YOUR ACID OR ALKALI

Hewitt-Robins
Monarch®
Acid Hose—



Your Best Buy For Service: You always save in the long run when you buy Hewitt-Robins Monarch Acid Hose. It's your insurance against the loss of costly alkalis and acids due to leakage, breakage or bursting.

Your Best Buy For Safety: This better acid hose helps protect against dangerous damage to personnel and property due to hose failure. For Monarch Acid Hose is stronger—safer.

Call your Hewitt Rubber Distributor (see "Rubber Products," classified phone book) or write for Bulletin No. 130.

For Welding . . . It's Hewitt-Robins Twin-Weld® Hose

HEWITT-ROBINS INCORPORATED
STAMFORD CONNECTICUT

Hewitt Rubber Division
Hewitt Resfoam® Division

Robins Conveyors Division
Robins Engineers Division

When inquiring check CP 2070 on handy form, pgs. 2-3

Only Koncentrik STAINLESS STEEL FITTINGS STOP DANGEROUS LEAKS

...with Patented
Floating Seat

- 1 Double sealing, self-centering seat is Teflon reinforced to eliminate line losses.
- 2 Heavy duty, fatigue-proof constructed for high pressure use.
- 3 Easy to install. No special tools needed.
- 4 Economical . . . because parts are interchangeable and reusable.
- 5 Complete line for tubes to 1" O.D., and for Schedule 5 S and 10 S tubing to 3/4". Other sizes to order.

**THE SPECIAL SCREW
PRODUCTS CO.**

5445 Dunham Rd., Bedford, Ohio

SEND FOR PROOF

Descriptive literature and performance data available upon request. Write today.



When inquiring check CP 2071 on handy form, pgs. 2-3

CHEMICAL PROCESSING

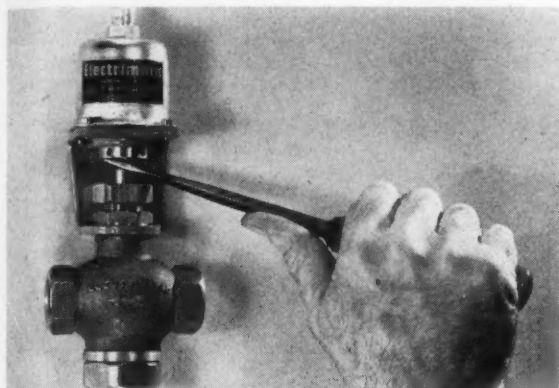
Automatic valve incorporates manual flushing to clear line . . .

simple method of removing dirt and grit after water regulating valve is installed

Uses: Controls flow of water to condensers of refrigerating machines.

Features: Inserting screwdriver between adjustment screw and push pin opens valve. After flushing line clear of dirt, simple adjustment resets screw.

Description: Pressure actuated valves designed to open automatically when condensing pressure rises to predetermined point. Built-in pilot valve is segregated from



Screwdriver used in manual flushing feature

main valve clapper resulting in accurate adjustment, low pressure drop, and greater water flow capacity. Valve bodies are cast iron and one model (WP) is offered in brass alloy.

Valves are available in following sizes:

MODEL	SIZE (inches)	PRESSURE (psi)
WP	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	60 to 130
WK	1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	55 to 140
WJ	2, $2\frac{1}{2}$, 3, 4	50 to 150

(Product of The Electrimatic Company, Dept. CP, 3501 Howard, Skokie, Ill. . . . or for more information check CP 2072 on handy form, pages 2 and 3.)

easy application is credited to floor patch . . .

applied to ruts and holes directly from container, ready to take loading immediately

Uses: Patch for concrete and mastic floors and platforms — either indoors or out.

Features: Needs no plasticizer — ruts and holes are merely brushed out, primed, filled with patch, tamped, and are then ready to receive traffic immediately.

Description: Redi-Patch contains rubber latex and metallics — no stone aggregate. It is black in color, and is used directly from its container without mixing. The manufacturer of this product reports that it is easily removed from the container.

(Product of the Dasco Company, Inc., Dept. CP, Baltimore 31, Md. . . . or for more information check CP 2073 on handy form, pages 2 and 3.)

APRIL, 1952



What is 100% Corrosion Safe?

Anything less than 100% safe is 100% UNsafe.

This fellow's lucky, in a way. He *thought* his safety valves were 100% safe, and because they weren't . . . weren't corrosion proof . . . they might have killed him. Because those valves were *almost* safe, it's going to cost someone a lot of money.

There's only one way to think of safety—think in terms of 100% or nothing. There's one sure way to get 100% safety—specify FarriSeal.

Why? Because they can't stick, plug or corrode. Critical working parts are permanently isolated from any contact whatever with the lading.

Because they're unaffected by back pressures in the discharge manifold due to its own operation or to the opening of other valves in the line.

Because these features make it possible for you to use smaller discharge piping, an economy which often amounts to substantially more than the cost of the valves.

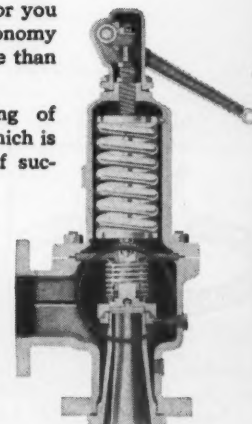
You'll be interested in the engineering of BalanSeal and FarriSeal Valves—design which is rapidly gaining acceptance in hundreds of successful installations.

Ask for our "8-Minute Brief."

Your Safety's REAL With FarriSeal



406 COMMERCIAL AVE., PALISADES PARK, N. J.



When inquiring check CP 2074 on handy form, pgs. 2-3

Standardaire

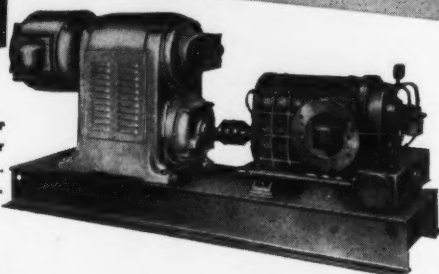
AXIAL FLOW POSITIVE PRESSURE

BLOWERS

provide air to the specific needs of many important industries because Standardaire Blowers are unique in design and construction—unequalled in quality and performance.

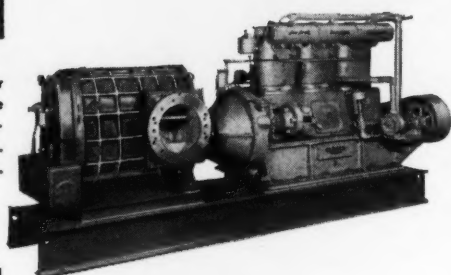
for CHEMICAL PROCESSING

Standardaire Blower with Varidrive Motor to deliver 780 c. f. m. at 1750 r. p. m.



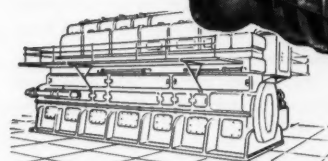
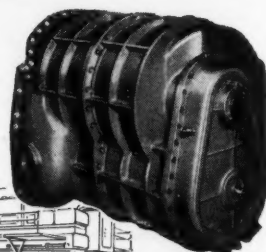
for SEWAGE PLANTS

Standardaire Blower with Climax Engine using sewage gas—to deliver 2100 c. f. m. at 720 r. p. m.



for DIESEL ENGINES

Standardaire Blower with 6000 c. f. m. capacity at 12 p. s. i.



Write DEPT. F-8
for Publication No. 90
BLOWER-STOKER DIVISION

READ STANDARD

CORPORATION

370 LEXINGTON AVE., NEW YORK 17, N. Y.

When inquiring check CP 2075 on handy form, pgs. 2-3

CONSTRUCTION

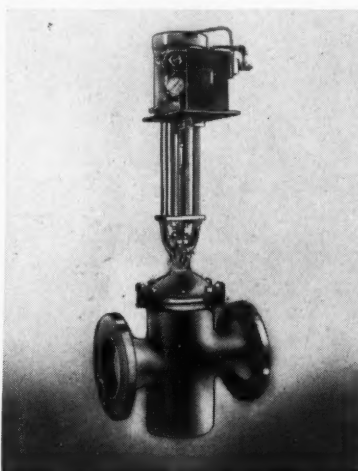
Flow rate varies directly with valve lift . . .

single-seated valve offers tight shut-off, too

Uses: Can be used with pneumatic controller systems, or for manually operated remote stations.

Features: Straight line relationship between valve lift and flow rate. This control sensitivity is not sacrificed in obtaining a tight shut-off.

Description: Throttling control valves are a combination of the Paul Venturi Ball Valve and the Conoflow Pneumatic Cylinder Operator. Com-



For difficult problems

bination of the two units is intended to offer a solution to the particularly difficult problems of flow control encountered with: corrosive fluids, abrasive materials, high temperature installations, and pressure applications.

Cavitation is eliminated because streamline flow can be maintained with the Venturi passage and smooth ball. In addition, these factors lead to high capacity and good control. Combination is offered in a variety of body materials (ferrous, including stainless, and non-ferrous) in sizes up to eight inches.

(Further information is obtainable from Conoflow Corporation, Dept. CP, 2100 Arch St., Philadelphia, Pa. . . . or for more information check CP 2076 on handy form, pages 2-3.)

CONSTRUCTION & MAINTENANCE is a sister section to the **MATERIALS** section . . . if you are interested in one, you'll be interested in other, too.

Cut glove costs 60% - 65% and solved lost-time problem

CASE NO. 147

Problem: High injury rate and glove replacement expense due to tearing of heavy unlined rubber gloves, which exposed workers' hands to plating acids and sharp metal edges.

Solution: Redmont 14" gauntlets, of NEOX (specially reinforced neoprene) over fabric base, gave maximum protection from snagging and biggest cost saving. (Cost only half as much as gloves previously used and gave much longer service.)



Reduce costs, improve safety and increase production with the correct gloves for your operation

Free Test Offer: Send brief description (on business letterhead) of operation, materials handled, temperature conditions. Without cost we will supply samples of type glove we recommend, plus helpful test data. Address

Edmont Mfg. Co., 1204 Walnut St.
Coshocton, Ohio
World's largest maker of coated industrial gloves—
NEOX, natural rubber and plastic

Edmont
COATED FABRIC
GLOVES

When inquiring check CP 2077 on handy form, pgs. 2-3



IMMEDIATE DELIVERY

on **Pyrex Brand**
HEAT RESISTANT SIGHT GLASSES

Now, Swift offers fast delivery on **SIGHT GLASSES**, cut or ground in any shape from **PYREX Brand Heat-Resistant Polished Plate Glass**.

For use on ovens, absorption columns, evaporators, stills, pressure vessels, etc. Resists clouding, pitting, chemicals (except HF and strong, hot caustic solutions). Supplied in rounds, squares, rectangles, and odd shapes in 8 thicknesses ($\frac{1}{8}$ " to 1") and any size up to 24" x 60".

Write, wire or phone for quotation — ask for **SIGHT GLASS** bulletin.

SWIFT LUBRICATOR CO., INC.
330 TENTH ST., SAN FRANCISCO 3 • ELMIRA, N. Y.
36 OLIVER ST., BOSTON 10

When inquiring check CP 2078 on handy form, pgs. 2-3

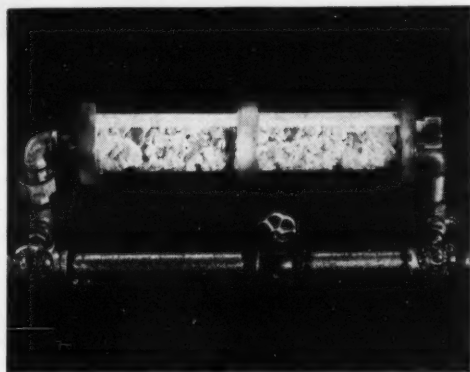
CHEMICAL PROCESSING

**More efficient engine cooling
when coolant is treated
to prevent corrosion . . .**

unique feeder holds special crystals that dissolve, leave protective coating on system's metal surfaces

A practical means for combating corrosion in the cooling systems of engines, with its attendant reduction in cooling efficiency due to clogging and coating of the system with rust, is reportedly answered through the utilization of a product known as Aqua-Clear.

In the open cooling system of a marine engine, for example, Aqua-Clear crystals are used in a special feeding device in the coolant intake and dissolve slowly as water (salt or



Feeder and special water-treating crystals for combatting corrosion in cooling systems of engines

fresh) passes through them. In solution, Aqua-Clear is carried into the cooling system where it forms a microscopically thin film on all metal surfaces. The film is so thin that there is no measurable effect on cooling action, yet it prevents galvanic action and corrosion.

In a closed-system marine engine, a liquid form of Aqua-Clear is available for the fresh water side of the cooling system. Aqua-Clear crystals and feeder are still recommended for the salt water side.

Feeder that is offered for these applications consists of a rugged lucite cylinder, fitted with strainer, baffle plate, and connections for easy installation in the cooling system. It can be attached in any position from horizontal to vertical between the water pump and the seacock. No special piping, heat exchangers, or expansion tanks are needed. Four sizes are available to cover engines from 75 through 250 horsepower.

(Aqua-Clear crystals, fluid, and feeders are products of the Sudbury Laboratory, Dept. CP, South Sudbury, Mass. . . or for more information check CP 2079 on handy form, pages 2 and 3.)

**Gives description, maintenance hints
on electrical gear motors**

Eight-page, two-color bulletin on fractional-hp gear motors describes applications for FHp models and outlines a simple method of determining correct horsepower requirements with the use of an ordinary pipe wrench and fish scale.

A section on maintenance pointers, is included as well as cut-away drawings, selection charts, and dimension tables for both concentric-shaft and right-angle shaft gear motors.

Bul GEA-5678 is issued by General Electric, Dept. CP, Schenectady, N. Y. When inquiring specify CP 2080 on handy form, pages 2 and 3.

Hand-tailored to any size you need . . .



**... Goetze Heat Exchanger Gaskets
are precision-made for longer service**

Whether your requirements call for heat exchanger gaskets larger than 100" in diameter, or smaller than 10", you can get the exact size you want . . . hand-tailored to the shape you need . . . simply by specifying "Johns-Manville Goetze."

And because they're *precision-made*, you'll find these better gaskets provide the effective sealing and longer life that make them actually cost less in the long run. Each gasket is carefully constructed in every detail to assure accuracy of fit

. . . to provide ample lap widths and uniform rib widths . . . and to prevent trouble-making wrinkles or cracks on the corners.

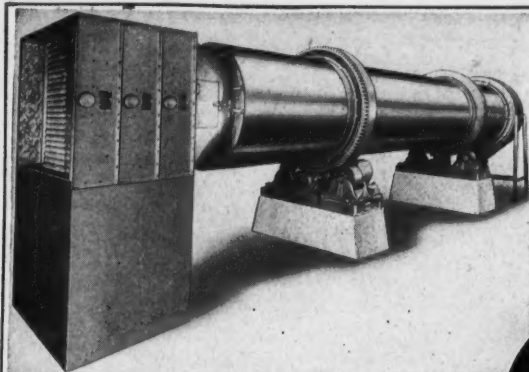
If you're having trouble with persistent joint leakage and frequent gasket replacements, find out how little it costs to have Goetze Heat Exchanger Gaskets tailored to your requirements. Your blueprint or template will bring a prompt estimate. Address Johns-Manville, Box 60, New York 16, New York.



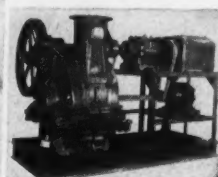
Johns-Manville Goetze GASKETS

**THERE'S A JOHNS-MANVILLE PACKING
AND GASKET FOR EVERY SERVICE**

When inquiring check CP 2081 on handy form, pgs. 2-3



TITLE:
CONTINUOUS PRESS



"Davenport" Rotary Hot Air Dryer

For materials or products that are critical to high temperatures, solve your drying problem with a Davenport Rotary Warm Air Dryer. Write for our complete catalog.*

*For quick reference see "Sweet's 1952 Processing Industries" file.

**DAVENPORT MACHINE
and FOUNDRY COMPANY**

Davenport 4, Iowa

DAVENPORT

De-watering Presses
and Screens.

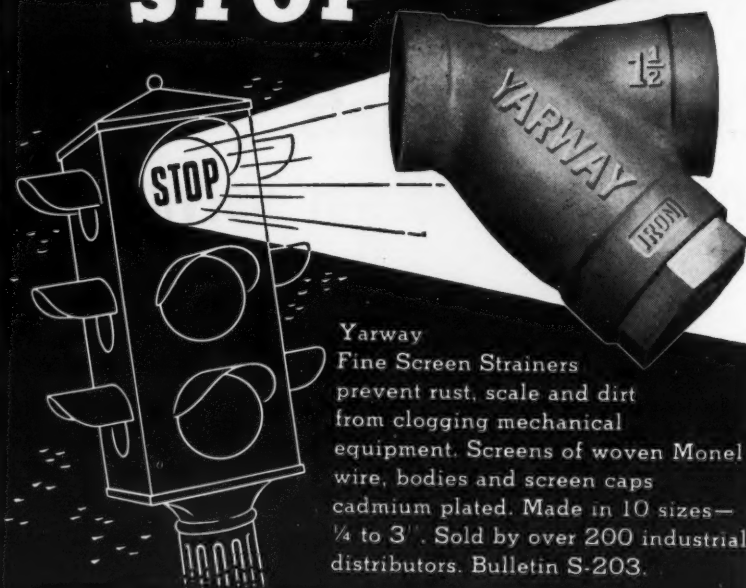
ROTARY

Steam Tube, Hot
Air and Direct Fire
Dryers.

Water Tube and
Air Coolers.

When inquiring check CP 2082 on handy form, pgs. 2-3

SAYS **STOP** TO SOLIDS



Yarway
Fine Screen Strainers
prevent rust, scale and dirt
from clogging mechanical
equipment. Screens of woven Monel
wire, bodies and screen caps
cadmium plated. Made in 10 sizes—
¼ to 3". Sold by over 200 industrial
distributors. Bulletin S-203.

YARWAY STRAINERS

YARNALL-WARING CO., 125 Mermaid Ave., Philadelphia 18, Pa.

When inquiring check CP 2083 on handy form, pgs. 2-3

CONSTRUCTION

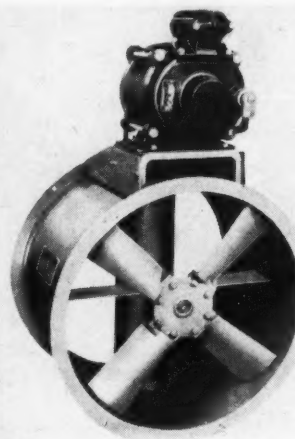
Aluminum propellers on ball bearings whirl quietly . . .

power line duct booster fan
operates against static pressure

Uses: For use in paint spray booths,
large range hood exhausters, or in
ventilating or heating systems. Rec-
ommended for air movement to 350°F.

Features: Belt-driven fan is rela-
tively quiet and will operate against
moderate static pressure up to 2 inches.
Propellers are of non-overloading cast
aluminum type.

Description: Type PLDX fan me-
chanisms are completely ball-bearing with
motors semi-enclosed or explosion-



Units are completely ball-bearing

proof, as required. Hoods can be
supplied for outside mounting. Units
are in 16 to 36" sizes, with air de-
liveries from 2700 to 23,000 cfm.

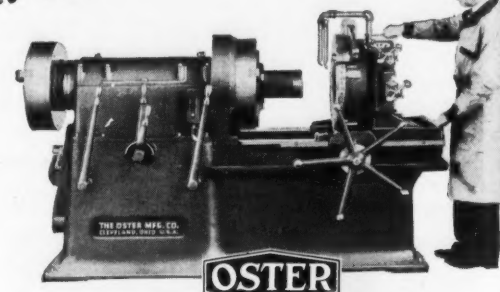
(Product of the Chelsea Fan & Blower
Co., Inc., Dept. CP, 639 South Ave.,
Plainfield, N. J. . . or for more in-
formation check CP 2084 on handy
form, pages 2 and 3.)

Shows electronic surge comparison tester

Industrial electronic surge comparison
tester, used mainly to locate insulation
faults and dissymmetries in various
electrical apparatus, is fully described
in eight-page bulletin. Detailed speci-
fications of portable and mobile models
are presented; photos show applica-
tions.

For those interested in high-frequency
testing, a high-voltage, high-frequency,
high-power tester is also described.
Bul DB 85-960 is issued by Westing-
house Electric Corporation, Dept. CP,
Box 2099, Pittsburgh 30, Pa. When
inquiring specify CP 2085 on handy
form, pages 2 and 3.

HIGH SPEED PIPE THREADING



"RAPIDUCTION" MACHINES

● Typical "RAPIDUCTION" speeds: 11 seconds for 1½" pipe;
25 seconds for 3" pipe; 66 seconds for 6" pipe; comparable
speeds on all other sizes within range of these machines.

No. 6-A "RAPIDUCTION": Standard range 1½" to 6" pipe; bolt
range 1" to 4".

No. 8 "RAPIDUCTION": Standard range 2½" to 8" pipe.

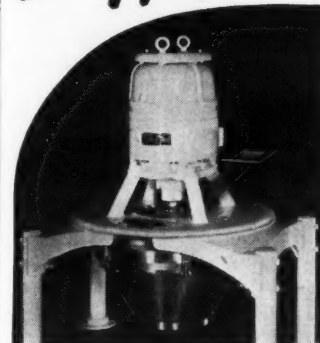
One die-head and one set of dies threads all sizes of same pitch,
right hand, American National Standard, without change. Write
for "RAPIDUCTION" catalog.

THE OSTER MANUFACTURING CO.

2032 EAST 61st STREET • CLEVELAND 3, OHIO, U.S.A.

When inquiring check CP 2086 on handy form, pgs. 2-3

NEW High Speed MIXER



- Reduces Mixing Time
- Provides Complete, Uniform Dispersion of Ingredients
- Improves Quality

The "ENTOLETER" Mixer
provides the simplest, most
economical method of pro-
ducing a homogeneous mix.
It is easy to install and
operate. Requires only 12
cubic feet of space; yet can
produce a finished mix at

rates up to 200 lbs. a min-
ute. It is adaptable to
either batch or continuous
mixing. Entoleter Division,
The Safety Car Heating &
Lighting Co., Inc., 1183
Dixwell Ave., New Haven
4, Conn.

Send for
latest
Bulletin.

ENTOLETER
CENTRIFUGAL MACHINES

When inquiring check CP 2087 on handy form, pgs. 2-3

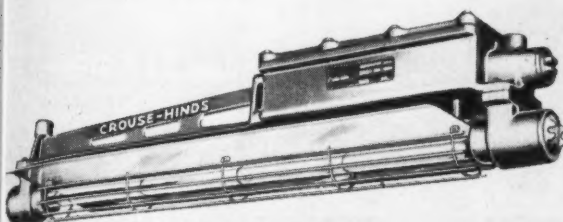
Fixture accommodates germ-killing ultraviolet energy lamps, resists explosion . . .

maintains sterility in flammable areas and protects personnel from direct exposure

Uses: To accommodate GE or Westinghouse single-pin G36T6 Slimline germicidal lamps, and for application in the manufacture of drugs and chemicals where explosive and flammable solvents are present.

Features: UL approved, fixture can be supplied with reflector to protect personnel against direct ultraviolet radiation, and a lamp tube guard to prevent tube breakage.

Description: Fixture consists of a tube of explosion-resisting Vycor glass which houses the lamp and which is sealed at each end into aluminum end-castings with threaded



Germicidal lamp fixture is explosion-proof

covers for access and relamping. Glass has extremely high ultraviolet transmission, manufacturer reports. A rigid structure consisting of the aluminum ballast housing and extension piece support the two tube end-castings. Each end of fixture is supplied with a 1/2" conduit hub for mounting. Several flexible and rigid attachments are available for mounting fixture in any position. Reflector can be mounted either above or below the lamp, depending upon the position in which the fixture is used.

Lamps produce ultraviolet energy at a wave length of 2537 Angstroms and have rated life of 6000 hr. Life average of ultraviolet radiation is 7.79 w, and the life average in microwatts per square centimeter at one meter is 68.4. While the lamp is rated at 32 w, a ballast loss of 16 w results in a total of 48 w input for the fixture.

(Product of Crouse Hinds Co., Dept. CP, 1347 Wolf St., Syracuse 1, N. Y. . . or for more information check CP 2088 on handy form, pages 2 and 3.)

Explains how roof coating protects surfaces against sun

How manufacturer's asphalt and asbestos roof coating protects surfaces against sun and moisture is explained in 4-page, illustrated bulletin.

Printed in two colors and supplemented with line sketches, the bulletin tells how the coating penetrates and seals roofing surfaces and prevents the composition roofing from drying out, cracking and leaking. Also described in the bulletin is manufacturer's plastic roof cement for repairing cracks, blisters, and holes, and the saturant which is used as a primer coat for excessively dry surfaces.

Bul 1-5201 is issued by Paramount Industrial Products Co., Dept. CP, University Center Station, Cleveland 6, Ohio. When inquiring specify CP 2089 on handy form, pages 2 and 3.

What are you doing about the third control?

3 ENTRAINMENT CONTROL

2 TEMPERATURE CONTROL

1 PRESSURE CONTROL

- ON • STEAM DRUMS
• FLASH TANKS
• EVAPORATORS
• PACKED TOWERS
• DEODORIZERS
• STILLs
• BUBBLE-CAP TOWERS
• RECEIVERS

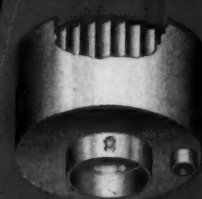
TYPE ID PURIFIER
INSTALLED IN
EVAPORATOR

• Frequently you give serious thought and attention to *pressure* and *temperature* control. This is quite natural because it means better operation and more production and often prevents damage. But what about the *third control*—*entrainment control*. Lack of this control can be just as costly as lack of pressure and temperature control.

Lack of the third control can mean shut downs and loss of production due to entrainment wear in engines and process equipment. Larger slugs of entrainment have been known to blow off cylinder heads of reciprocating engines and to ruin thrust bearings of turbines.

Lack of third control means poor efficiency of superheaters, steam ejectors, dryers and other equipment. It means dirty pipe lines and fouled valves.

End this damage *once and for all* with Hi-eF Purifiers. They remove 99% of all entrainment. Individually guaranteed, Hi-eF Purifiers are the most economical protection you can buy . . . they cost no more than an ordinary separator. Write us today about your entrainment problem. Let our engineering staff, without the slightest obligation, give you the proper solution.



DOWNFLOW INTERNAL PURIFIER

PURIFIER DIVISION,
THE V. D. ANDERSON COMPANY
1959 West 96th Street • Cleveland 2, Ohio

Gentlemen: Please send additional information on Anderson Hi-eF Purifiers.

Name

Company

Address

City Zone State

When inquiring check CP 2090 on handy form, pgs. 2-3



GUARANTEED PERFORMANCE SCRUBBING TOWERS by Aqua-Therm

The AQUA-THERM scrubbing tower shown here was guaranteed to remove more than 99% of the H_2SO_4 mist in plant exhaust gases. Actual performance tests by the customer revealed better than 99.9% removal.

WRITE TODAY FOR INFORMATION AND CATALOG TO:

Aqua-Therm Inc.
DAYTON 1, OHIO

When inquiring check CP 2091 on handy form, pgs. 2-3

Autoclave's IMPROVED CONING AND THREADING TOOLS FOR HIGH PRESSURE TUBING offer



2 Great Features

- 1 Assure Perfect Centering Every Time.
- 2 Eliminate Causes for Work Hardening.

- Threading Tool Accommodates All 6 Sizes of Dies.
- Coning Tools Accommodate 3 Sizes of Cutters Each.

Write for Bulletin 9150

Export Dept. • 751 Drexel Bldg. • Philadelphia 6, Pa.

AUTOCLAVE ENGINEERS, INC.

860 EAST 19TH STREET • ERIE, PENNSYLVANIA
LABORATORY & PILOT PLANT HIGH PRESSURE EQUIPMENT



When inquiring check CP 2092 on handy form, pgs. 2-3

CONSTRUCTION

Provides instant light when other power sources fail . . .

ball float hydrometer shows when battery needs recharging

Uses: As powerful, standby emergency light when fuses blow or power supply for lighting fails.

Features: Constructed of glass jar rechargeable battery and equipped with visible ball-float hydrometer.

Description: Battery has heavy-duty pure lead plates, hard rubber separators, patented leak-proof termi-



Provides emergency lighting
when power fails

nals, and automatic filling control. Built-in trickle-charger maintains specific gravity between emergencies and built-in fast charger restores battery for next emergency.

Choice of floodlights or sealed beam lamp heads and either conduit connection for permanent wiring or cord and plug attachment for semi-portable installation. Lamp heads are removable, and extra heads are available for remote mounting. UL approved.

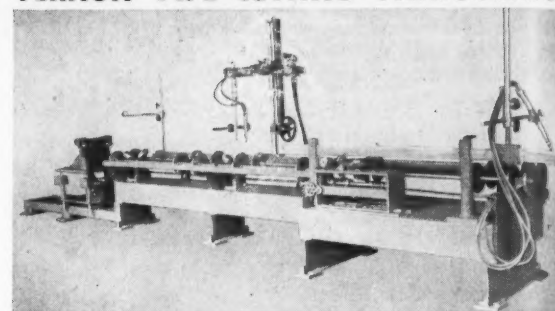
(Product of The Carpenter Mfg. Co., Dept. CP, Somerville, Mass. . . . or for more information check CP 2093 on handy form, pages 2 and 3.)

Gives counsel services for water systems

Four-page folder, measuring 8 1/2 by 11", briefly outlines the service, counsel, and engineering offered by company to aid manufacturers in getting highest efficiency from their water and sewage systems. Services include survey, test, design, construction, and finance.

"The Pittsburgh Service for Water and Waste Water Systems" is issued by Construction & Engineering Div., Pittsburgh Pipe Cleaner Co., Dept. CP, 133 Dahlem St., Pittsburgh 6, Pa. When inquiring specify CP 2094 on handy form, pages 2 and 3.

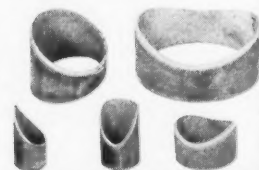
VERNON "PIPE CUTTING" PANTOGRAPH



This portable, semi-automatic guided torch machine produces all types of beveled cuts, either straight, curved or angular for pipe fabrication work. Handles pipe up to 24" in diameter. No layout or templates required and all cuts are extremely accurate, smoothly finished and beveled. Cuts stainless steel pipe by using powder type torches. Proved in the field and backed by 20 years of experience and engineering development.

FOR ALL TYPES OF BEVELED CUT-OFFS

WRITE for
literature
and
engineering
data



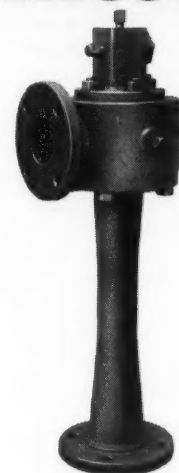
VERNON TOOL CO., LTD.

1101 Meridian Ave., Alhambra, Calif.
6226 Washington, Houston 7, Texas

CENTRIFUGAL PUMPS • DESANDERS
VIBRATING SCREENS
PIPE CUTTING PANTOGRAPHS
STEEL VALVES • STUFFING BOXES

When inquiring check CP 2095 on handy form, pgs. 2-3

VACUUM-the easy way



Standard
single-stage
unit

**ELLIOTT
Steam Jet
EJECTORS**

These units have no moving parts, require practically no maintenance, and can be installed anywhere. Available in complete range of sizes and types (including corrosion-resistant) and backed up by experienced "know-how." Bring us your vacuum problem. Descriptive bulletins on request.

G2-3



ELLIOTT Company

Industrial Process Dept.
JEANNETTE, PA.

DISTRICT OFFICES IN PRINCIPAL CITIES

When inquiring check CP 2096 on handy form, pgs. 2-3

CHEMICAL PROCESSING

CONSTRUCTION & MAINTENANCE

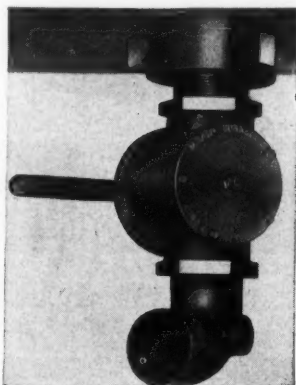
Tank cars are unloaded quickly, safely by one man without tools . . .

light-weight valve fitting in 2 or 3" size eliminates spilling of hot products

Uses: For fast, safe unloading of all types of materials from tank cars.

Features: Unloading fitting, designed for one-man operation without the need for wrenches or other tools, eliminates the danger of spills of hot products in case the car valve has been damaged in transit. Flow is controlled at the car discharge connection, eliminating the dangers encountered in climbing to the top of a hot tank car to operate the bottom valve.

Description: Valve-type fitting reduces from standard tank car thread to a 2 or 3" pipe size. Plug-type valve is fast operating and self-draining. Clearance of the plug in the valve is adjustable to compensate for handling of very hot materials. "Open" and "Close" stops on the valve cover prevent the valve from being turned the wrong way. A 1" pipe connection is provided for air or steam cleaning of lines from the car to the pump. Swivel collar allows the outlet end to be pointed in the right direction when the fitting is tight on the car. Manufacturer reports field tests on valve fitting have been made on hot rosin at 500°F and on hot lard at 150°F.



Requires no wrenches or other tools for emptying tank cars

Valve-type fitting is all aluminum except for the valve plug which is brass. Overall length to outlet center is 14½". Weight is 19 lb. Fitting is available in two models (MCV-390 for 3" outlet, and MCV-290 for 2" outlet).

(Product of Mead Cornell & Company, Dept. CP, PO Box 2682, Cleveland 7, Ohio . . . or for more information check CP 2097 on handy form, pages 2 and 3.)

Handy chart shows resistance of coatings to chemicals

Chemical resistances of various types of manufacturer's coatings to corrosive chemicals is clearly shown in two-page technical bulletin. Based on laboratory tests and practical field applications, bulletin provides potential users with the resistance ratings of three protective coatings to 69 corrosive chemicals in both concentrated and dilute form.

These synthetic resin protective coatings have been developed for controlling corrosion on industrial floors, walls, ceilings, structural steel, tanks, pipes, ducts, and machinery. Not designed to produce heavy thickness demanded for tank lining applications, they are not recommended where direct chemical contact is continuous. Resistance ratings, although based on relatively prolonged direct contact, are intended to indicate the degree of resistance of the coatings to spills, splashes, drips, and fumes of the chemicals listed.

Bul 501 is issued by Prufcoat Laboratories, Inc., Dept. CP, 50 E. 42nd St., New York 17, N. Y. When inquiring specify 2098 on handy form, pages 2 and 3.

APRIL, 1952

*wherever you
need stainless steel
tubing...*

TRY TRENTWELD!

● Stock lines in food, paper, and chemical plants; heat exchanger units in processing industries; cooling coils in breweries, beverage industry, dairies and dairy equipment...throughout all industry, wherever there's a stainless or high alloy tubing application, there you'll find TRENTWELD.

And it's to be expected! TRENTWELD is made in a tube mill by tube engineers who roll and weld stainless and high alloy tubing exclusively. Then too, TRENTWELD is available in a full range of sizes — 1/8" to 36" in diameter. This, coupled with Trent's convenient mid-continent location, means prompt delivery of what you want ...when you want it. If yours is a stainless or high alloy tubing requirement: Call on us.

TRENTWELD

STAINLESS STEEL TUBING

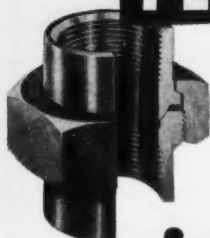
TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN

(Subsidiary of Crucible Steel Company of America)

When inquiring check CP 2099 on handy form, pgs. 2-3

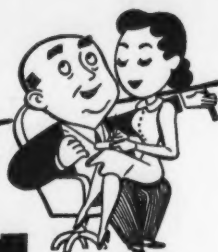
IT'S NO SECRET! it just comes naturally!

catawissa
PERFECT SEAL



the original
hot forged steel

unions
are made by
union specialists!



**GROUND &
POLISHED
SEATS
REQUIRE
NO
PACKING!**

see the complete line... write for Catalog 11
a type for every use... all temperatures, all pressures!

CVF

CATAWISSA VALVE & FITTINGS CO.

620 MILL ST.

CATAWISSA, PENNA.

When inquiring check CP 2100 on handy form, pgs. 2-3

DURAMETALLIC

Packings
SAVE DOLLARS



"THE PACKING
THAT IS
ENGINEERED
FOR THE JOB"

The bearing-like sealing provided by Durametallic Flexible Metallic Packing means minimum wear on rods, shafts and sleeves! Genuine maintenance savings for you in repair, replacement and shut-down costs. . . .

"Always Specify DURAMETALLIC"



WRITE FOR DURAMETALLIC
PACKING BULLETIN NO. 429 CP

DURAMETALLIC
KALAMAZOO

CORPORATION
MICHIGAN

MANUFACTURERS OF METALLIC and SEMI-METALLIC PACKINGS
ROTARY MECHANICAL SEALS and PACKING TOOLS

When inquiring check CP 2101 on handy form, pgs. 2-3

CONSTRUCTION

**Explosion-proof fixture
swings through
30° angle...**

UL listed and approved for Class I, Groups C and D

Uses: Lighting fixture for hazardous locations.

Features: Threaded joints are free floating and high temperature lubricated to avoid freezing.

Description: Type CS explosion-proof, flexible lighting fixture fittings conform to the 1951 Code and are UL listed and approved for Class I, Groups C and D. They are made of



Light fixture swings thru 30°

cast metals which can be selected to meet construction of conduit system.

Swivel joint is not subject to mechanical injury and has total swing angle of 30°, universal movement. Fitting is self-aligning; has no soldered joints. Length is 7 3/8", width 2 3/4".

(Made by Russell & Stoll Co., Inc., Dept. CP, 125 Barclay St., New York 7, N. Y. . . . or for more information check CP 2102 on handy form, pages 2 and 3.)

**Heats heavy fuel oils to
pumping temp**

Among the advantages of steam-type, fuel oil heater described in six-page catalog is that only the oil actually used for burning is heated to the temperature necessary for pumping. Excess amount of oil pumped, above that used by burners, is piped back into an oil return connection provided on the heater unit.

Specifications are given for eight types of the heater which is a two-pass unit, combining a cylindrical casing enclosing a steam pipe coil in the initial heating section and a steam-jacketed central oil tube for the final heating.

An automatic temperature controller prevents the possibility of over- or under-heating of oil.

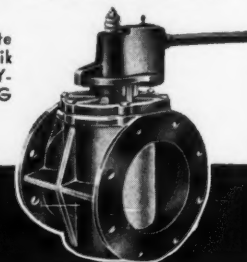
Particular application is with heavy fuel oils, such as most #5 and 6 grades, since they require heating to the proper temperature for satisfactory pumping and handling. Cat 714 is issued by Hauck Manufacturing Co., Dept. CP, 124-136 Tenth St., Brooklyn 15, N.Y. When inquiring specify CP 2103 on handy form, pages 2 & 3.

**VALVE
LEAKAGE
COSTS MONEY!**

**STOP YOUR LOSSES
WITH DeZURIK VALVES**

Every leaking valve is an expensive valve, piling up costs in line-losses as well as in shutdowns, clean-up time, repairs and replacements. DeZURIK Easy-Operating PLUG VALVES will stop those losses in your plant because they STOP LEAKS. On any flow — air, liquid, fibrous, slurry — DeZurik's long-life, rubber-faced plugs seal dead-tight every time. They're YOUR answer to YOUR problem.

Write for complete
catalog of DeZurik
friction-free EASY-
OPERATING
VALVES.



DEZURIK
SHOWER CO.
SARTELL, MINN.

**MADE IN ENGLAND
BY MILLSPAUGH, LTD. SHEFFIELD**

When inquiring check CP 2104 on handy form, pgs. 2-3

when you specify
SYNCHRONOUS TIMING MOTORS
it's sound design economy
to specify the best...

Cramer



Dependable, constant speed performance with exceptionally high torque make the Cramer Type SX Permanent Magnet Synchronous Motor your best possible choice for instrument and control applications. A thoroughly engineered product, produced under skilled technical supervision... and proved in years of field service... Cramer Type SX Motors meet a wide range of specifications with clearly stated performance characteristics.

Torque 30 in. oz. at 1 r.p.m. Response so fast that motors reach synchronous speed in 1/2 to 2 cycles, stop within one pole of motion (1/60 sec.) on 240 r.p.m. rotor shaft.

Available with standard gear trains from 60 r.p.m. through 1/24 r.p.m. for 25, 30 and 60 cy. Also available in clutch type, chart drive and reversible units. Send for technical bulletins.

the R. W. CRAMER CO., Inc.
BOX 9, CENTERBROOK, CONN.

When inquiring check CP 2105 on handy form, pgs. 2-3

CHEMICAL PROCESSING

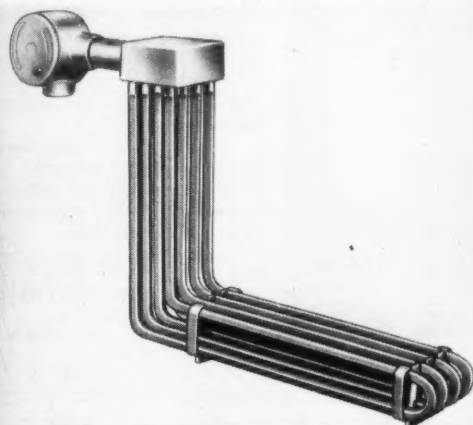
Vapor-tight tubes shield wiring and give longer safety in tank heaters . . .

screw-plug unit has explosion-proof terminal with wider thermostatic range

Uses: For heating transfer mediums, such as salt, lead or oil, for melting tin, babbitt, solder, and similar metals, for processing in chemical or plastics plant.

Features: Vapor-tight terminal box is standard feature of Chromalox type TBL electric tank heater. Type ARMT screw-plug unit has wider, built-in thermostatic range.

Description: TBL units are available in steel, alloy, or stainless with ratings from 3 to 7.5 kw. Heated height ranges from 11 1/8" to 43 3/4" and length from 13-7/16 to 25-9/16". ARMT screw plug unit is of brass or copper



for water heating, with a range from 50 to 250°F; with steel for oil heating the range is from 150 to 550°F and has a reduced "heat intensity" to prevent carbonization of oil on the sheath of the heater. Unit is available with 2 and 2 1/2" standard pipe thread fittings in ratings from 1.5 to 10 kw. Heated length of unit is from 7 3/4" to 48".

(Product of the E. L. Wiegand Co., Dept. CP, 7500 Thomas Blvd., Pittsburgh 8, Pa. . . or for more information check CP 2106 on handy form, pages 2 and 3.)

Gives information on linings to halt corrosion

Twelve-page, illustrated booklet is designed to assist architects, engineers, maintenance men, and others in protecting equipment against chemical corrosion through use of protective membranes.

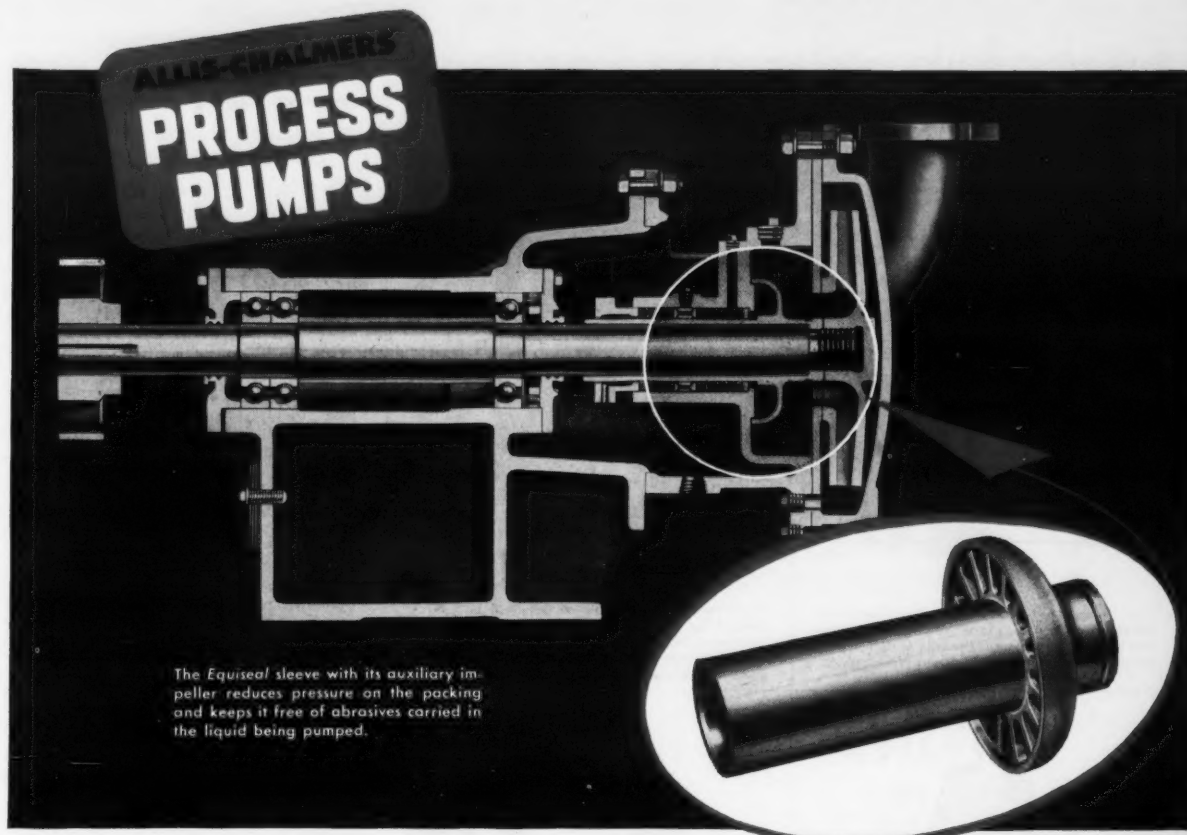
Manufacturer's linings, both rubber and plastic, are used in pipes and fittings to combat chemical action, in fume fans, pumps, and impellers, "scrap" baskets, electroplating, pickling and mixing drums, and in tumbling drums used in metal finishing. Can also be used in welded steel tanks, stacks, ducts.

Linings are classified as: semi-hard natural rubber, hard natural rubber, neoprene, soft natural rubber, polyvinylidene chloride, polyvinyl chloride, and Buna N type.

Recommendations (77 in all) are given for such chemicals as inorganic acids, salts and alkalis, plating solutions, and organic materials.

"The Laybond Family of Protective Membranes" is issued by Acme-Fisher Division, Broadway Rubber Corporation, Dept. CP, 529 E. Broadway, Louisville 2, Ky. When inquiring specify CP 2107 on handy form, pages 2 and 3.

APRIL, 1952



The Equiseal sleeve with its auxiliary impeller reduces pressure on the packing and keeps it free of abrasives carried in the liquid being pumped.

How To Keep Abrasives Out of the Stuffing Box

YOU CAN ELIMINATE abrasives-in-the-stuffing-box problems with an Allis-Chalmers Process Pump equipped with *Equiseal* stuffing box. This stuffing box arrangement consists of an auxiliary impeller like the one shown which produces a low pressure area in front of the packing. On all suction lifts and on suction heads up to fifteen feet, this pressure is zero. *None of the liquid being pumped enters the stuffing box.* None of the abrasive carried by the liquid enters the stuffing box.

NO LEAKAGE

The *Equiseal* stuffing box is so efficient that no leakage whatever occurs with

suction head as high as fifteen feet. Where the suction head is more than fifteen feet, the head at the packing is reduced by that amount. Penetration of the packing by abrasive bearing liquid is reduced. Sleeves and packing last much longer.

The *Equiseal* stuffing box can be added to your present Allis-Chalmers Process Pumps.

If you pump corrosives or abrasives, you should know about the Allis-Chalmers Process Pump with *Equiseal* stuffing box. Ask your Allis-Chalmers Authorized Dealer or District Office, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 08B6615.

A-3474



Equiseal, Texrope and Vari-Pitch are Allis-Chalmers trademarks.

ALLIS-CHALMERS

When inquiring check CP 2108 on handy form, pgs. 2-3

Sold . . .

Applied . . .

Serviced . . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.



MOTORS — 1/2 to 25,000 hp and up. All types.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.



TEXROPE — Belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.

HOW PROCTOR RESEARCH MAKES POSSIBLE "GUARANTEED DRYER PERFORMANCE"



Your telephone call or letter to Proctor & Schwartz, Inc. will place you in immediate touch with a sales engineer who is thoroughly acquainted with the needs of your type of plant.



As a result of his interview tests will be conducted by the engineers in our research department where all of the latest equipment and data are available. You may even come to the lab yourself.



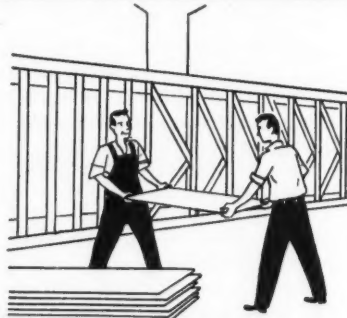
Based on test results, preliminary plans will be made by competent engineers to determine the size and kind of equipment needed together with approximate cost figures.



Having kept close touch with research and preliminary engineering the sales engineer will present recommendations to you. Together you will discuss these in terms of meeting your specific requirements.



Once your order is placed the equipment will be designed in exact detail so that the finished machine will meet your individual requirements — and perform exactly as guaranteed in the sales agreement.



Intelligent interpretation of plans on the part of the Proctor men who build your equipment is the final touch to producing the finest possible equipment—engineered and built to meet your individual requirements.

PROCTOR & SCHWARTZ, INC.

663 TABOR ROAD • PHILADELPHIA 20, PA.

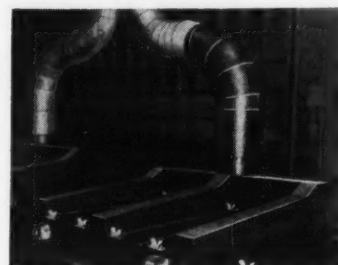
When inquiring check CP 2109 on handy form, pgs. 2-3

CONSTRUCTION

Exhaust ducts withstand corrosive fumes . . .

polyethylene systems are serviceable from -20 to $+170^{\circ}\text{F}$

Polyethylene exhaust and duct systems offer outstanding resistance against most acid fumes, including hydrochloric, hydrofluoric, sulfuric and nitric acids. They can be used for installations on tanks and tank liners, exhaust hoods, fume ducts, and fume stacks, and can be built to customer's



specifications, manufacturer reports. These systems are easily cleaned and will bear up in temperature ranges from -20 to $+170^{\circ}\text{F}$. No upkeep such as relining, repainting, etc., is required.

(Product of American Agile Corp., Dept. CP, P. O. Box 168, Bedford, Ohio . . . or for more information check CP 2110 on handy form, pages 2 and 3.)

Rugged coating offers protection in very corrosive areas . . .

excellent adhesion to wood, masonry, concrete; non-flammable

Uses: For extremely corrosive areas where protection against acids, alkalis, alcohol, oil, water, salts and gasoline is required.

Features: Odorless, tasteless and non-toxic when dry; excellent adhesion to wood, masonry and concrete.

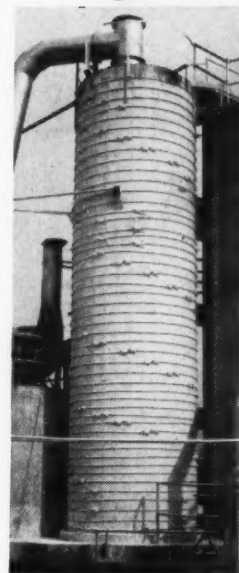
Description: Lankote 200 Series is a thermoplastic resin-based group of coatings. Coatings may be brushed, sprayed, dipped or roller-coated.

Coatings reportedly are very resistant to abrasion and impact. A three-coat system is recommended for most work, but for unusually severe conditions, five or six coats. Lankote 200 Series coatings are not resistant to acetates, esters, chlorinated hydrocarbons, ethers, ketones, oleum and aromatic hydrocarbons.

Coverage is 400 sq ft per gal per coat on metal or old paints; 200 sq ft per gal per coat on wood, masonry and concrete. Stock colors are: white, light

p+d+e = Marietta

A formula for profitable storage
at lower cost, less loss



Yes, the Marietta PDE system provides you with complete, flexible storage facilities that reduce storage and handling costs, give year 'round protection to all your valuable chemicals.

Marietta PLANS • DESIGNS
• ERECTS concrete slave storage tanks in any size, in any arrangement to fit your present and future plans. These tanks are airtight, moisture-proof, damage-resistant, permanent and virtually maintenance-free. They protect your bulk chemicals, reduce spoilage and waste, lower insurance costs.

To learn how you can have a complete system designed and quickly erected to your individual needs PDQ, the PDE way, write or wire our nearest office.

**the MARIETTA
concrete corporation**
Marietta, Ohio
Baltimore, Md. Charlotte, N. C.

When inquiring check CP 2111 on handy form, pgs. 2-3

SPRAY NOZZLES...two guides to proper selection!



No matter what you may face in the way of a spraying problem, it can be solved quickly and at low cost with Spraying Systems Spray Nozzles. Two fact-packed catalogs—No. 22, General Industrial Spray Nozzles, and No. 23, Pneumatic Atomizing Nozzles—are yours for the asking. They show you all the various types of spray nozzles available . . . explain design and construction . . . and outline spray characteristics such as atomization, impact of spray and capacity. Write for your copies today.

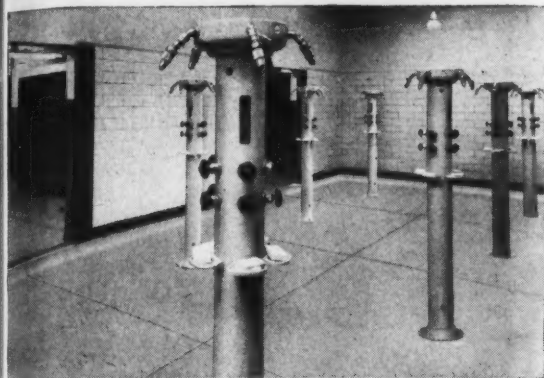
SPRAYING SYSTEMS CO.

ENGINEERS AND MANUFACTURERS
3216 RANDOLPH STREET BELLWOOD, ILLINOIS

WRITE FOR CATALOGS NO. 22 AND NO. 23

When inquiring check CP 2112 on handy form, pgs. 2-3

CHEMICAL PROCESSING



Installation of 10 Column Showers, Cincinnati Chemical Co.

THEY SELECTED BRADLEY COLUMN SHOWERS

Without the usual partitions of the 3-stall or 5-stall Bradley Showers, the Column Showers are otherwise complete with drain fittings, sprayheads, soap trays, mixing chamber for temperature control with hot and cold water control valves. Ready to install.

Floor space is saved and by placing Showers away from walls, wall water-proofing is not required and space may be used for lockers and benches.

Here's the answer to your Shower requirements at low cost. Write for Catalog 4701-CS. BRADLEY WASHFOUNTAIN CO., 2399 W. Michigan Street, Milwaukee 1, Wisconsin.

BRADLEY
showers
Distributed through
Plumbing Wholesalers

When inquiring check CP 2113 on handy form, pgs. 2-3

NEW PRODUCTION INSTRUMENTS

#310 SURFACE TEMPERATURE THERMOMETER



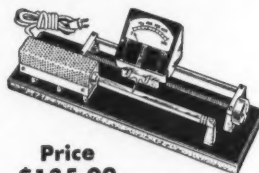
THERMO-DYNAMICALLY designed to produce an essentially unilateral thermal measuring instrument which indicates temperature from back of instrument only. A highly reflective evaporated mirror on the dial insures the thermal element against external radiation. Range 0°-300° F, accuracy 1% entire scale. Quickly and easily applied to any flat or curved surface. Send for Bulletin 206C1.

Price
\$5.75



#304 MELTING POINT METER

A FAST, EFFICIENT and accurate production tool for the determination of melting points between 20° and 500° F of waxes, resins, gums, fats, tars, plastics, low melting alloys, organic and inorganic compounds. Determinations may be made with quantities of but a few milligrams of substances. The instrument may be operated by any technician. Send for Bulletin 201C1.



Price
\$135.00

PACIFIC TRANSDUCER CORP.
Industrial Division CI
11921 West Pico Los Angeles 64, Calif.
Dealers Solicited Phone Arizona 9-6129

When inquiring check CP 2114 on handy form, pgs. 2-3

CONSTRUCTION

and dark grey, tile red, yellow, green, blue and clear.

(A product of J. Landau Co., Dept. CP, 221 Wooster St., New York 12, N. Y. . . or for more information check CP 2115 on handy form, pages 2 and 3.)

Practically any technique used for fabricating rigid plastic . . .

polyvinyl chloride has high strength, good chemical resistance

Uses: Non-plasticized, rigid polyvinyl chloride structural material offered in form of sheet, rod, pipe, block, and welding rod. Can be stamped, sheared, sawed, ground, turned, milled, planed, drilled, embossed, drawn, swaged, formed by dies and by blowing, molded, rolled, bent, welded, heat sealed, and cemented.

Features: Most interesting advantage of the material is its ability to be molded on relatively inexpensive wooden, composition, or aluminum molds.

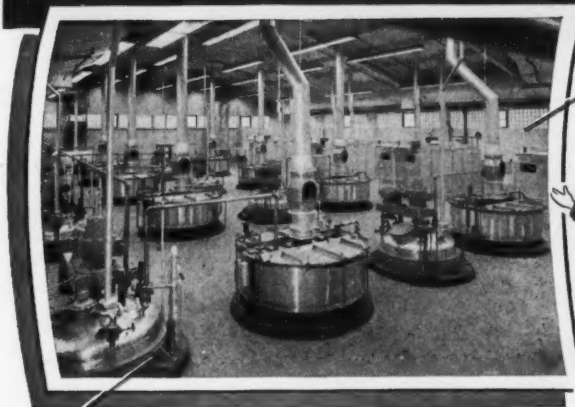
High strength, light weight, high breakage resistance, and non-toxic. Outstanding resistance to organic and inorganic acids, alkalis, and alcohol. Good deformation and abrasion resistance, high dielectric strength, good low temperature factor, high primary electrical insulation value, and non-flammable.

Description: Typical physical specifications of Boltaron 6200 Series non-plasticized, rigid polyvinyl chloride are set forth below:

Specific gravity	1.48
Tensile strength @ 72°F, psi	7850
Modulus of elasticity @ 72°F in tension, psi	485,000
Compressive strength @ 72°F, psi	10,700
Modulus of elasticity in compression, psi	370,650
Flexural strength @ 72°F, psi	12,100
Modulus of elasticity in flexure, psi	383,050
Izod impact @ 70°F flatwise, ft/lb/in	3.05
Izod impact @ 70°F edgewise, ft/lb/in	2
Hardness, Rockwell	114
Hardness, Durometer	92
Thermal distortion, °F	175
Thermal conductivity, Btu/hr/ sq ft/°F/in	1.164
Coefficient of linear expansion, °F	0.000025

(Product of H. N. Hartwell & Son, Inc., Park Square Building, Boston, Mass. . . or for more information check CP 2116 on handy form, pages 2 and 3.)

Today's high replacement costs emphasize the need for



"Automatic" Sprinkler 10-point FIRE PROTECTION

Take a look at your production equipment. Some of it has probably had its original cost written off by many years of service. Some may be only a few years old and some practically new. Yet all of it is vital to your operation.

Have you ever considered how much it would cost to replace it with all new equipment at today's high prices?

Of course it's insured. And if your company is alert, you try to keep insurance coverage up to value. But are you informed daily of every price rise on every piece of equipment you own? Have you figured installation costs at today's high labor rates? Are you sure that replacement equipment is obtainable on short notice at any price?

The more you think about it, the more you'll agree that it's far better to prevent the destruction of vital equipment than to face the prospect of replacing it at many times its original cost. "Automatic" Sprinkler 10-Point Fire Protection is designed, engineered and manufactured specifically for you to do just that!

Write today for our factual book
"The ABC of Fire Protection"

"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA
YOUNGSTOWN 1, OHIO

OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

"Automatic" Sprinkler

FIRST IN FIRE PROTECTION

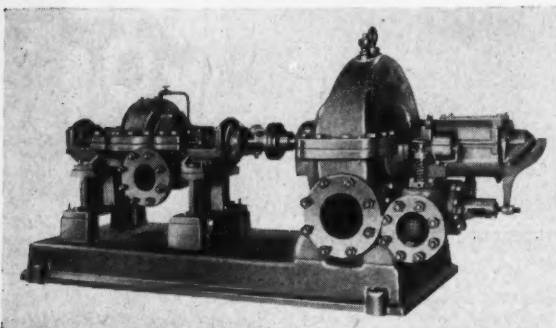
When inquiring check CP 2117 on handy form, pgs. 2-3

Gives 1000 hp, with steam pressure up to 875 psi and at 750°F, to drive auxiliaries . . .

high pressure parts are outside of casing to provide quick and easy maintenance

Uses: For mechanical drives for pumps, fans, blowers, stokers, generators, line shafts, cane shredders, pulverizers, and other plant auxiliaries.

Features: Turbines are capable of developing 1000 hp with pressures up to 875 psi at 750°F. All high pressure



parts and joints are outside and visible to operator, thereby promoting easy maintenance for even unskilled employees. High pressure steam does not contact turbine casing.

Description: Steam turbines are single-stage impulse, double impact type. Steam is directed twice against a single row of blades by use of special steam-reversing nozzles to provide double impact to the rotor. Definite range design eliminates unnecessary weight.

(Product of The Dean Hill Pump Company, Dept. CP, 4000 E. 16th St., Indianapolis, Ind. . . or for more information check CP 2118 on handy form, pages 2 and 3.)

Explains flue gas analyzer's part in better combustion

Manufacturer's data sheet describes the Davis indicating and recording flue gas analyzer which combines a thermal conductivity gas analyzer with an electronic recorder. The combined apparatus provides a continuous recorded combustion analysis. Data sheet explains use of equipment in combustion control analysis and also its operation and construction. Photographic illustrations and schematic diagrams explain the device within the four pages.

Instrumentation Data Sheet No. 10.15-3a is issued by Brown Instruments Division, Minneapolis-Honeywell Regulator Co., Dept. CP, Station 40, Wayne and Windrim Aves., Philadelphia 44, Pa. When inquiring specify CP 2119 on handy form, pages 2 and 3.

Accuracy is outstanding feature of automatic machine for sampling . . .

chain and sprocket drive device for obtaining wet or dry sample cuts

Uses: For obtaining wet or dry sample cuts for mill control.

Features: Cutter is actuated by means of a chain and sprocket drive. Driving unit is a gearmotor operating at intermittent intervals.

Description: Formerly known as the GECO sampler,

look to TRI-CLOVER for the best in Stainless Steel CORROSION-RESISTANT FITTINGS • PIPE TUBING • PUMPS and CUSTOM FABRICATION



**CONICAL END
FITTINGS**

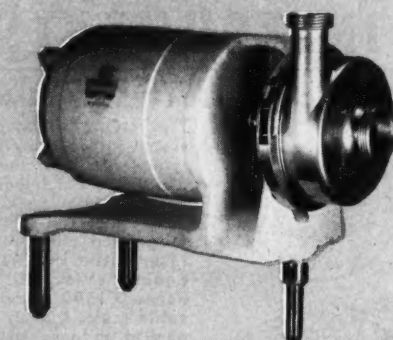
Fabricated in Stainless Steel Type 316 and other SS analyses. A complete line of ells, tees, crosses, laterals, reducers, etc., in sizes from 1 in. O.D. thru 4 in. O.D. Features: Light weight—low cost—simple, fast installation—leak-tight—sturdy flanges of all types for every application—easily adapted to all other fitting types. Fully annealed and passivated. (Illustrations show a 90° sweep ell and a conical-end tee flanged to standard I.P.S. threaded adapter.)



**SANITARY
FITTINGS
TUBING and PIPE**

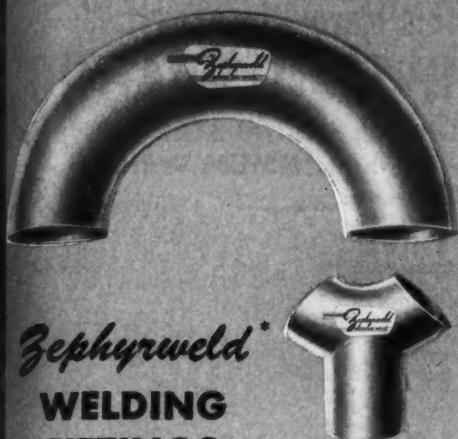
Tri-Clover "sanitary" type stainless steel fittings are available in sizes from 1 in. thru 4 in. O.D., in a full range of fitting types. Designated and approved as meeting 3-A Standards throughout, incorporating numerous exclusive design and construction features that assure highest quality.

A full line of stainless steel tubing and pipe is available for all corrosion-resistant needs in sizes from 1 in. thru 4 in. O.D.



**INDUSTRIAL
and SANITARY PUMPS**

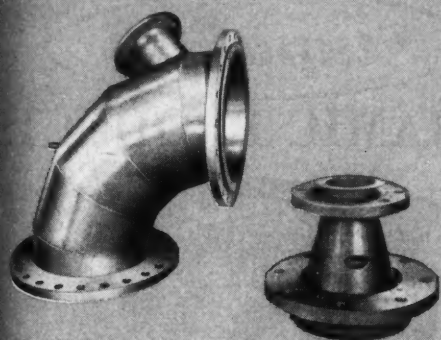
Tri-Clover offers a full line of centrifugal pumps for handling clear liquids, heavy liquids and semi-solids of all types, for use on sanitary lines in food, dairy and beverage industries — and for general industrial corrosion-resistant service. Capacities from 10 to 1250 gallons per minute.



Zephyrweld[®] WELDING FITTINGS

Fabricated in Stainless Steel Type 304, 347, 316 and other SS analyses. Fabricated in I.P.S. and O.D. Tube Size from 1/2 in. thru 36 in.—in ells, tees, crosses, welding nipples, flanges, adapters, etc. Features: Streamlined, sweep ell construction; free-flow; light weight; fully annealed and passivated. A high quality fitting widely used in broad chemical process use.

[®] Trade Mark Registered



CUSTOM FABRICATION

When it comes to expert welding and fabricating of complex custom assemblies, you just can't beat the speed and accuracy offered with TRI-CLOVER'S exclusive Heli-Arc Atomic Hydrogen Welding . . . a specialized semi-automatic process that assures highest quality and FULL corrosion resistance (Shown are two examples of the type of "special" jobs we handle every day).



RECESSED-END FITTINGS

Fabricated in Stainless Steel Types 304, 347 and 316. Here are low cost, light weight, high quality fittings designed for fast, simple soldering, brazing or socket welding. Available in sizes for an extremely wide range of applications, ranging from 3/4 in. thru 24 in. Full line of elbows, return bends, tees, crosses, adapters, etc. Fully annealed and passivated.

ILLUSTRATED here are some of the types of stainless steel fittings, pumps, tubing, pipe and custom fabrication that are included in the *complete* Tri-Clover line of corrosion-resistant liquid conveying line materials.

Tri-Clover fittings are truly quality fittings. To assure the highest possible degree of corrosion, resistance, all industrial fittings are fully annealed and passivated after fabrication. Modern, precision fabrication to close tolerances precludes any need for reworking during installation.

By installing these stainless steel products in your process lines, you will realize the advantages of increased production and lower maintenance costs. Over 30 years of specialized engineering service is at your disposal in helping to solve your specific corrosion-resistant piping problems.

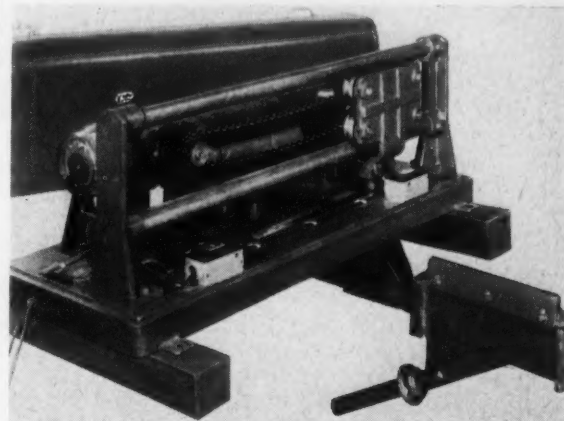
Write for details, or see your nearest Tri-Clover Jobber.

I-252



CONSTRUCTION & MAINTENANCE

automatic device has carriage assembly on ball-bearing rollers. Cutter has standard travel of either 16 or 21". Limit switch shuts off motor at limits of cutter travel, while



time switch reactivates the mechanism according to pre-established sampling cycle. Overtravel of the cutter is prevented by a magnetic-operated brake on end of the motor shaft. A manually-operated switch can be used for operating cutter at other than its set time cycle. Cutter travel speed is fixed at 7 1/2" per sec.

(Product of Denver Equipment Co., Dept. CP, 1400 17th Street, Denver, Colo. . . or for more information check CP 2121 on handy form, pages 2 and 3.)

Make thermal insulation a single-step job with cement

Uses: Thermal insulating cement for temperatures up to 1000°F. Recommended for insulating valves and fittings, storage tanks, digesters, breechings, glass and ceramic kilns, stills, ovens, steam cylinders, air preheaters, hot air ducts, turbines, piping, and finishing treatment on exposed insulation surfaces.

Features: Insulating becomes a single-operation job with this cement — can be applied, pointed, sealed, and smoothed to light-reflecting surface in one operation. Can be applied to surfaces that are either hot or cold. No finishing treatment is needed in inside applications.

Description: One-Cote is a dry, fibrous insulating material with a mineral wool base. It has exceptionally good adhesive qualities. After 2-hour set, it will not soften in rain or normal atmospheric conditions. It is reported to form a good bond with insulating blocks and other types of insulation. Said to set rapidly (accelerated by heat), and shrinkage is negligible. Some specific data are outlined below:

Factors of One-Cote Cement	
Mean Temperature °F	k
200	.50
400	.56
600	.63
800	.74

One-Cote insulated surfaces are moisture and fire resistant and easily painted.

(Product of the Eagle-Picher Sales Company, Dept. CP, American Building, Cincinnati 1, Ohio . . . or for more information check CP 2122 on handy form, pages 2 and 3.)

When inquiring check CP 2120 on handy form, pgs. 2-3

SYNTRON DRY FEEDER MACHINES



with vibrated,
non-arching hoppers

Are complete units for the controlled feeding of dry, bulk materials to processing machinery.

They can fill a definite place in YOUR material handling processes by controlling the feed of materials to Scales, Dryers, Mixers, Grinders, etc.

A fast flow — a dribble feed — or an instantaneous cutoff — controlled either manually or automatically — by scale action — or by motor load — or by solution flow.

Write For FREE Catalog Folder

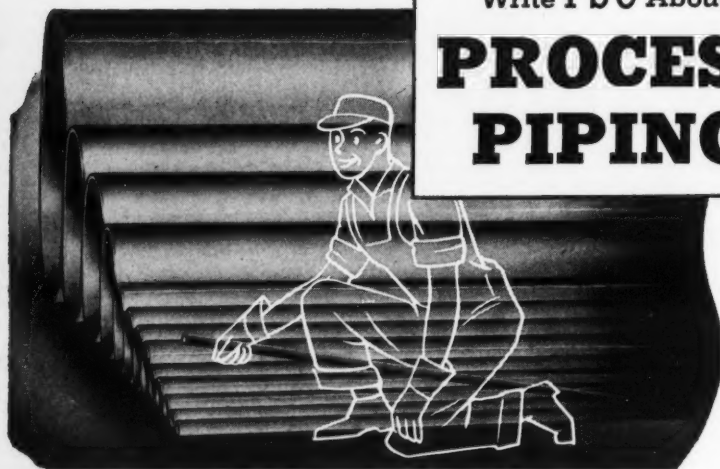
SYNTRON COMPANY

110 Lexington Avenue

Homer City, Penna.

When inquiring check CP 2123 on handy form, pgs. 2-3

Write PSC About PROCESS PIPING



Fabricated from Complete Range of Alloys,
Any Diameter Up to 60", and in Any Shape

PSC welded process tubing is furnished in any alloy whatsoever. This feature accounts for its wide application in meeting the unlimited variety of heat, corrosion, oxidation conditions in process plants.

Any diameter up to 60"; wall thicknesses to 3/8"; temperatures to 2200°. Precision fabrication of tubing assemblies is a specialty. Send b/p or write as to your needs.

THE PRESSED STEEL CO., 709 N. Penna. Ave., Wilkes-Barre, Pa.



Custom Fabricators for the Process Industries Since 1928. Send Your Blue Prints

When inquiring check CP 2124 on handy form, pgs. 2-3

CONSTRUCTION

One or more circuits
provided in switch
timers . . .

one model provides both heavy- and medium-duty contacts

Uses: Originally designed for night lighting and similar work, the switches control one or more circuits for one "on" and one "off" period during the 24-hour cycle.

Features: Simple clock timer plugs into electric outlet; has outlet in it for plugging in controlled device.

Description: Type T-47 controls one circuit with contact ratings of 35 amp at 230 volts. Timer provides one on-off cycle in 24 hours.

Type T-470 controls two circuits with ratings of 5 and 30 amp at 115 volts. Both types are timed by electric clocks.



60, 50, or 25 cycle current

These clock motors can be furnished for 50 or 60 cycle current, or for 25 cycle current in a special model. Settings can be spaced as close as five minutes apart; or as far as 22 hours apart. In addition to standard design, timers can be converted to two on-off operations per day.

(Built by General Electric Company, Dept. CP, Schenectady 5, N. Y. . . . or for more information check CP 2125 on handy form, pages 2 and 3.)

Two switches, two cams
take action from
same shaft . . .

limit switch has 60:1 worm drive

Uses: Designed to limit travel of rotating members, synchronize "on" or "off" period of equipment with any rotational position, or act as a safety device in various ways.

(Continued on page 200)

This Revolutionary NEW GRIP-STRUT GRATING

gives MAXIMUM STRENGTH
with MINIMUM WEIGHT

RUGGED
LOW COST
NON-SKID
VERSATILE



A Globe
patent feature
(Patents Pending)

Not welded. Vertical members joined by integral saddles—side channel members and grating are a single unit—combines great strength with light weight. Simplifies installation—greatly reduces costs of construction. Easily replaces old or obsolete types of grating. Feature for feature, Grip Strut has a lower initial cost factor than any other type. Available in steel or aluminum.

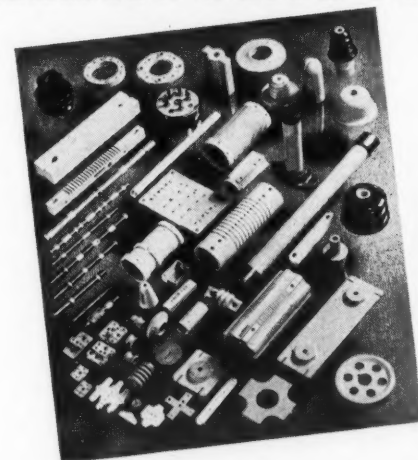
WRITE FOR FULL DETAILS



The **GLOBE** Company
MANUFACTURERS SINCE 1914
4006 S. PRINCETON • CHICAGO 9, ILL.

When inquiring check CP 2126 on handy form, pgs. 2-3

Stupakoff CERAMIC PRODUCTS



Pressed, extruded, machined, ground and assembled ceramic products for electrical and electronic applications, for all voltages, frequencies and temperatures. Specialized resistor

ceramics, metallized ceramics, high thermal shock resisting ceramics and ceramic dielectrics. Send for information, giving proposed application and approximate requirements.

STUPAKOFF CERAMIC & MANUFACTURING CO.
Latrobe, Pennsylvania

When inquiring check CP 2127 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Protects machines against wear caused by chips, dust, water, oil . . .

impervious neoprene sleeves withstand temperatures from -45°F to 220°F

Uses: For protection over ways on machine tools, hydraulic piston rods, worm drives, and related industrial equipment.

Features: Made of special neoprene material, sleeve protectors are impervious to flying chips, oil, grease and water and can withstand temperatures from -45° to 220°F without cracking.

Description: Applications are listed for protectors as large as 24" diam and 30' long. Round, square, rectan-



gular, and triangular sleeves of all sizes are made to operate in angular, horizontal, or vertical positions. Telescoping sleeves allow added flexibility and maneuverability to moving parts.

(Product of the A & A Manufacturing Co., Dept. CP, 2017 W. Clybourn, Milwaukee 3, Wis. . . or for more information check CP 2128 on handy form, pages 2 & 3.)

Info on steam, gas, and air turbines is contained in six bulletins

Six illustrated bulletins describe manufacturer's line of high-efficiency, impulse type steam, gas or air turbines for mechanical drive for general industrial use.

Five types of turbines available are described in separate bulletins and range from 1/4 to 120 hp with net weights of 90, 105, 150, 225, and 355 lb. Performance charts, construction details, dimensions, and weights and selection data is also given. Sixth bulletin provides general turbine information and covers turbine wheels, nozzles, speed governors, valves, bearings, lubrication, shafts, packing, finish, and summary of factory tests. General descriptions and suggestions for proper selection of turbines are given in the bulletin.

Buils 4110-A, 4110-B, 4110-C, 4110-D, 4110-E, and 4110-F are issued by the Pyle-National Company, Dept. CP, 1334 N. Kostner Ave., Chicago 51, Ill. When inquiring specify CP 2129 on handy form, pages 2 and 3.

APRIL, 1952

EXPLOSION STARTS BUTADIENE FIRE

Blaw-Knox Automatic Fog System Confines Blaze to Small Area



A serious fire, yes, but no "total loss"—thanks to the protection of adjacent equipment by smothering blankets of water from a

BLAW-KNOX AUTOMATIC FOG SYSTEM

Actuated by rate-of-rise thermostats, this system sounds an alarm and instantly throws a dense, quenching fog of water on the danger spot—either extinguishing or controlling the blaze while protecting adjacent equipment.

A Blaw-Knox System engineered for the fire hazards existing in or around your plant is a most effective weapon against fire's toll. Your insurance savings as they accrue applied to its cost—provide you with the utmost in fire protection plus a good financial investment . . . Glad to consult with you and submit an estimate without obligation.

Deluge Systems, Wet Pipe Systems, Dry Pipe Systems, Water Spray and Fog Systems, Rate-of-Rise Sprinkler Systems, and Foam and Carbon Dioxide Extinguisher Systems.

"LITTLE JOEY SPRINKLER"
Always on the Job



BLAW-KNOX SPRINKLER DIVISION
of BLAW-KNOX CONSTRUCTION COMPANY
829 Beaver Ave., N.S., Pittsburgh 33, Pa.
Offices in Principal Cities

BLAW-KNOX

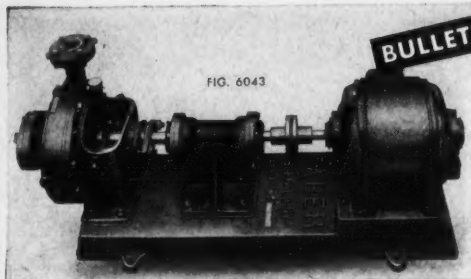
AUTOMATIC FIRE PROTECTION SYSTEMS

When inquiring check CP 2130 on handy form, pgs. 2-3

TABER for Higher PRACTICAL Performance

PUMP for EVAPORATOR SERVICE

BULLETIN CL-339 AVAILABLE



Especially applicable to Evaporator or Vacuum service, and any apparatus from which liquids are to be removed under vacuum. • Large chamber completely surrounds the stuffing box and seals perfectly against vacuum.

• The water chamber surrounding the stuffing box can also be used as a drip chamber when pumping fluids from atmospheric pressure. • Sealed, double ball bearing shaft support is another feature of this Taber single suction centrifugal pump. • Built of any obtainable metal or alloy found suitable by customer. • Please use business stationery when writing for Bulletin CL-339.

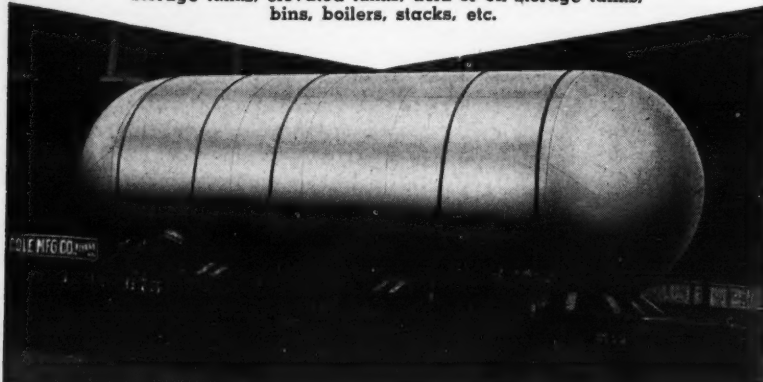
TABER PUMP CO. (Est. 1859) 320 Elm St., Buffalo 3, N. Y.

TABER PUMPS

When inquiring check CP 2131 on handy form, pgs. 2-3

COLE ALUMINUM TANKS

We have available stock sizes from 9,500 to 22,800 gallons for pressure storage, and tanks of 99.6% pure aluminum for hydrogen peroxide from 5,000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.



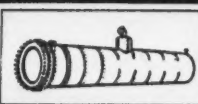
R. D. COLE MFG. CO.
NEWNAN, GA. Established 1854



TANKS



TOWERS



CYLINDERS



VESSELS

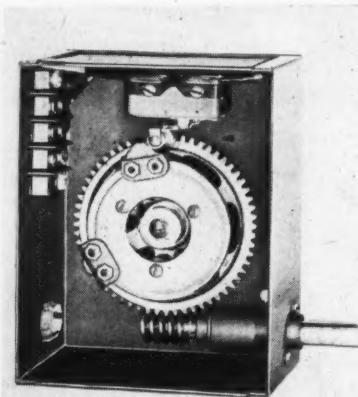
When inquiring check CP 2132 on handy form, pgs. 2-3

CONSTRUCTION

(Continued from page 198)

Features: Though it has only one input shaft, the unit controls two switches using two cams.

Description: R-1000-A Limit Switch is housed in a 16-gage case. Drive shaft (which may enter from left or right) carries a worm gear which positions the pinion and its two cams. Each cam actuates one of the switches (SPST) so that either the



Cams are positioned by rotation of the 1/2-inch switch

normally open or normally closed switch can be used. On 60 cps AC, switches handle 15 amp @ 125v; 5 amp @ 250v. Switches can also be furnished for 20 amp AC and 10 amp DC for non-inductive loads.

Dimensions of the unit are 6 7/8 x 5 3/8 x 3 1/2 inches. Shaft is 1/2-inch diameter. Manufacturer reports that construction is solid enough to hold parts in close alignment.

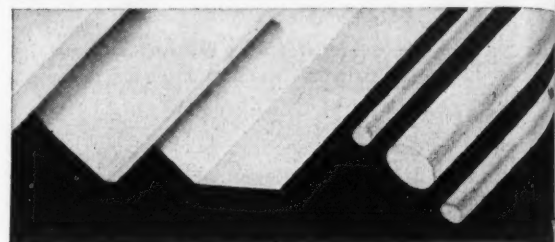
(Built by Crane Electric Co., Dept. CP, 1437 Lake Street, Chicago 7, Ill. . . . or for more information check CP 2133 on handy form, pages 2 and 3.)

Mill construction costs step by step

Bulletin covers construction and operation of Highland-Bell Mill in South-central British Columbia. Begins with original planning of mill and continues through initial stages of construction to completed mill.

Figures are presented on cost of materials, time required for constructing various components, and operating performance of mill. Bul F10-B16 is issued by Denver Equipment Company, Dept. CP, 1400 Seventeenth St., Denver 2, Colo. When inquiring specify CP 2134 on handy form, pages 2 and 3.

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"Teflon" powder is processed in new equipment expressly engineered to yield Fluoroflex-T products with optimum inertness and stability. Rigid control assures complete uniformity in Fluoroflex-T for better machinability and freedom from internal strains, cracks or porosity.

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*DuPont trade mark for its tetrafluoroethylene resin.
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When inquiring check CP 2135 on handy form, pgs. 2-3

BRIEFS...

from contemporary publications

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You get a "quick look" at the most valuable articles being published in this field, and kindred fields . . . by reading the "BRIEFS" section of CHEMICAL PROCESSING every month.

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It's a monthly service . . . to save you time . . . yet keep you informed. See "BRIEFS" in this issue, page 134.

Expanding Chemical Production



Establish Omaha insecticide plant to supply midwest area

Establishment of a new insecticide producing plant in Omaha, Neb. has been announced by John Powell & Co., Inc. The new plant will have special equipment for manufacturing Parathion, DDT, and 2,4-D formulations as well as Toxaphene and Chlordane concentrates for control of corn borers, green bugs, grasshoppers, and other agricultural pests.

Open organic chemical division at Reheis Company, Inc.

A new organic chemical division will be added to the Reheis Company, Inc., Berkeley Heights, N.J. The new division is now producing the vegetable enzymes tyrosinase, ascorbic acid oxidase, and invertase.

\$2 million laboratory Expansion is planned by Du Pont

Plans for a new \$2 million Haskell Laboratory of Industrial Toxicology near Newark, Del. have been announced by Du Pont. In addition to testing Du Pont products, the new laboratory will also conduct research on the causes of industrial fatigue and the factors which make clothing comfortable.

Mathieson takes over fertilizer plant near Phoenix

Mathieson Chemical Corporation has acquired the fertilizer division of the Tovrea Land & Cattle Co. near Phoenix, Ariz. The purchase is part of Mathieson's western expansion program.

Boost red iron oxide production up to 200 tons per month

Current production of red iron oxide at Stabilized Pigments, Inc., Piscataway, N.J., has been increased from 80 to 200 tons per month as a result of added facilities and improved processing methods.

Schedule \$20 million for sulfur production boost

Approximately \$20 million is being spent by the Freeport Sulphur Co. on new projects to increase the nation's supply of defense-essential sulfur. During the year the company: 1) acquired new reserves of sulfur in salt dome deposits and in other forms, 2) started developments in the Louisiana marshes of new brimstone mines at Bay Ste. Elaine and Garden Island Bay, and 3) Produced 1,560,000 long tons of sulfur. A third new mining development is planned at Nash dome, about 35 miles southwest of Houston, Tex.

New Texas plant will boost production of Hydrotan and Hydrocarb

Commercial production of Hydrotan and Hydrocarb, products of Columbia-Southern Chemical Corp., will reach a full-scale basis within three months at the company's new plant at Corpus Christi, Texas.

Mass production of Hydrocarb, effective in preparation of oil emulsion muds, will relieve U.S. well drillers of dependence of upon Argentine produced quebracho, heretofore an essential material to the oil drilling industry. Hydrotan controls the viscosity of drilling mud.

Facilities for production of the two products are part of the company's \$8 million expansion program at Corpus Christi.

Begin benzoic acid production soon by new synthesis of material

Operations for the production of benzoic acid through a new synthesis using basic raw materials will begin soon with the recently expanded facilities of the Monsanto Chemical Company's John F. Queeny plant in St. Louis, Mo. The new process, reported to be the first of its kind in the country, is expected to double the company's production of technical and U.S.P. grades of benzoic acid.

Aula acquires H. V. Walker Co. plant in Jersey City

Aula Chemicals, Inc., manufacturer of textile and allied printing colors, and formerly at 131 Dey St., Jersey City, N.J., has taken over the entire production facilities of the H. V. Walker Co., Elizabeth, N.J., manufacturers of industrial finishes (lacquers and enamels) and similar products.

Raise annual aluminum output by 135 million lb

The first of two new smelting lines has begun operating for the Aluminum Company of America at the company's plant in Point Comfort, Texas. The new line increases the plant's capacity to about 135 million lb of aluminum annually. A second new line is scheduled for completion at the plant within two months. Output of the units will go to the government for a five-year period.

Stanford radioactivity sources second only to AEC

With the opening of its new Radiation Engineering Laboratory, Stanford Research Institute, Stanford, Calif., the largest source of radioactivity outside of AEC installations will be available for research in industrial uses of atomic and nuclear science. The institute recently completed arrangements for obtaining a 5000-curie source

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When inquiring check CP 2136 on handy form, pgs. 2-3



That's All the Cleaning an Allis-Chalmers TEFC Motor Ever Needs

MAINTENANCE COSTS ARE LOW for users of Allis-Chalmers Totally-Enclosed, Fan-Cooled Motors. They are easy to clean because even the stickiest dirt can be wiped or blown off without dismantling the motor or even stopping it. They seldom require cleaning because cooling air flows over the *outside* of the motor. There are no external concealed air passages to clog up and cause over-heating. You get better operational continuity, lower maintenance.

Bearings Save Maintenance, Too

Double-shielded ball bearings require no regular maintenance under most normal operating conditions. Yet if difficult service makes re-lubrication desirable, it can be done without dismantling the motor or bearings. Rigid cast iron frame and stiff end brackets maintain bearing alignment . . . assure maximum bearing life.

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PUMPS — Integral motor and coupled types from 3/4 in. to 72 in. discharge and up.

of Cobalt 60, a gamma ray emitter, from Brookhaven National Laboratory. This source will make SRI's radioactive source five times the power of any presently available for industrial and medical research.

Expansion program is underway for chlorine, caustic soda

Contracts for the engineering and construction of additional facilities of the Diamond Alkali Co. plant in Painesville, Ohio have been awarded. The expansion program is expected to more than double the company's productive capacity of chlorine and caustic soda by the electrolytic method. Construction has begun on a 20-acre site.

Gets government OK for oxidation of oleic acid with ozone

Government approval has been given to Emery Industries, Inc., of Cincinnati, Ohio, for construction of a \$2 million plant for the oxidation of oleic acid by ozonization. Production of the new plant will increase by many fold the company's present output of Azelaic and Pelargonic acids, the two products which result from the oxidation process.

Because of the efficiency of the new process, Azelaic acid will be the cheapest higher molecular weight dibasic acid on the market, with one possible exception. Pelargonic acid is expected to be the cheapest monobasic aliphatic acid of its type.

In addition to increased yields, of purer products, versatility of the new unit will make possible a broader selection of raw materials for a greater variety of end products. Present raw materials for the new process, oleic acid, is derived from animal fats and tallow. Production from the new plant may be expected within less than a year, or at least by the middle of 1953.

Hilton-Davis Chemical acquires more distribution facilities

A six-story building has been purchased in Boston, Mass., by Hilton-Davis Sales Co. as distribution and service center of dyestuffs for the textile industry in northeastern U.S. The firm will distribute dyes produced by the Hilton-Davis Chemical Co., Inc., of Cincinnati, a division of Sterling Drug, Inc.

Metals and alloys cast under vacuum are scheduled for production

Vacuum Metals Corporation, Cambridge, Mass., will undertake commercial production of vacuum-cast gas-free metals and alloys as a subsidiary of National Research Corporation. The company has a capacity for more than five tons per day, and has been producing gas-free high purity copper for some time for use in magnetrons and other electronic devices.

By resorting to vacuum melting techniques, it is possible to handle many high temperature alloys as well as more reactive rare metals, including zirconium, molybdenum, and titanium without problems of oxidation and resulting deleterious effects. In some cases metals are boiled at temperatures as high as 5000°F and at pressures as low as one hundred thousandth of an atmosphere.

New Literature

Digests cleaning procedure for factory and mill

Eighteen-page digest presents methods and materials for industrial cleaning tasks. In brief language, 54 separate maintenance jobs are outlined in the two-color catalog. Job data is based on experience using manufacturer's cleaning products. Index permits quick location of desired cleaning procedure. Among operations covered in digest are those relating to air conditioning and electrical equipment, machine tools, floor maintenance, derusting metal parts, and preventing rust in hydraulic systems.

Data on four models of cleaning and paint-stripping gun are presented in chart form. "Oakite Plant Maintenance Digest" is issued by Oakite Products, Inc., Dept. CP, 22 Thames St., New York 6, N. Y. When inquiring specify CP 2138 on handy form, pages 2 and 3.

Bulletin describes pyrometers and related equipment

Four-page bulletin describes manufacturer's line of controlling pyrometers and related equipment, available in nine temperature ranges from -200 to 3000°F. Described are various heat controlling applications possible with the equipment. Also discussed are functions of continuous, high-limit on-and-off control, or automatic shut-offs and alarms.

Service data and circuit diagrams, along with several photographs of installations, are presented. Also included is the company's double-contact pyrometer which gives a controlling function on high and low temperature limits and low-limit control. In addition to usual furnace, oven, and kiln control functions, the bulletin describes special applications for the double-contact pyrometer, which include bearing temperature, liquid temperature, and process control.

Bul G-2 is issued by Assembly Products, Inc., Dept. CP, Chagrin Falls, Ohio. When inquiring specify CP 2139 on handy form, pages 2 and 3.

Describes alloys' role in machinery parts

A wide variety of cast and wrought alloy parts to help solve abrasion, corrosion, and high-temperature problems is described in 24-page booklet with more than 60 blueprints, tables, and photographs.

Parts described are made of various cobalt-, iron-, and nickel-base alloys, used widely as metal-cutting tools, jet aircraft parts, chemical equipment, and many types of valves and furnace parts. A few of the parts discussed in detail include: bushings, half-bushings, lathe centers, burnishing rollers, wear strips, knives.

"Long-Wearing Machinery Parts" is issued by Haynes Stellite Company, Dept. CP, Division of Union Carbide and Carbon Corp., 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 2140 on handy form, pages 2 and 3.

Illustrates laboratory equipment and accessories

Eight-page bulletin describes apparatus for laboratory use. Featured item is vacuum pump capable of producing absolute pressures down to 0.1 micron. Two-color bulletin offers actual size illustrations of black or amber rubber tubing. An automatic pipet and vial-filling machine is pictured for use in accurate dispensing of chemical reagents. Bulletin also describes a vertical centrifugal immersion pump, analytical balances, polyethylene wash bottles, stainless steel beakers, etc.

"Lanco Apparatus News" is issued by Arthur S. LaPine & Company, 6001 S. Knox Ave., Chicago 29, Ill. When inquiring specify CP, 2141 on handy form, pages 2 and 3.

Outlines translations of German advances in organic chemistry

Eight-page bulletin itemizes recent German publications covering developments in field of organic chemicals. Lists 52 patent applications, research reports, and directions for manufacture authored by I. G. Farben. Patent applications review procedure for stripping acetylene-containing gases of impurities, production vinyl acetylene, preparation of butadiene, and other processes.

Topics covered in research reports include advances in field of pyrrolidone and its derivatives, thermal cleavage of ethylene chloride and propylene chloride, and an easy method of obtaining fluoroethylene from ethane containing fluorine and chlorine. Bul 58 is issued by Research Information Service, Dept. CP, 53 Nassau St., New York 17, N. Y. When inquiring specify CP 2142 on handy form, pages 2 and 3.

Valuable compilation of info on 5000 dangerous materials

By presenting in its 848 pages a digest of the available information on the hazardous properties of some 5000 materials, this book makes a valuable contribution to safety literature. Additionally, the material should have a wide audience, as it "... is directed not only to the industrial physician and trained safety inspector, but to foremen and plant managers, who have neither the time nor the inclination to make a deep study of possible toxic hazards that might occur in their shops. It is also intended for research and development laboratories and pilot plant workers who use a wide variety of materials and who often need reliable safety data concerning them".

Nearly one-half the book devotes itself to an alphabetical listing of the previously mentioned 5000 dangerous compounds. Information given includes: hazardous properties (flammability and toxicity); treatment, antidotes, extinguishers; storage and handling; personnel safety precautions; physical properties (flash point, autoignition point, etc.); and shipping regulations.

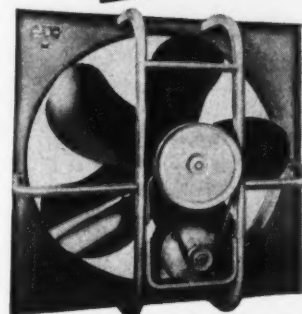
Next comes a section dealing with explosive materials
(Continued on page 205)

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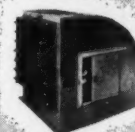
TYPE MC MANCOOLER
BELT DRIVEN



TYPE PLF
POWER LINE EXHAUST FAN



TYPE BB
ALL PURPOSE EXHAUST FAN



TYPE PHD
PENTHOUSE UNIT



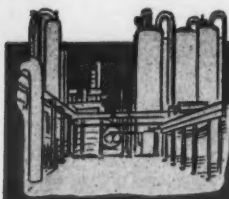
TYPE PLDX
POWER LINE DUCT BOOSTER



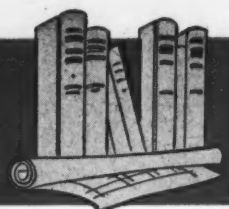
TYPE PLDU
POWER LINE AIR BLASTER



When inquiring check CP 2143 on handy form, pgs. 2-3



Processing and Engineering Data



Calculating Requirements for Pyrex Cascade Coolers

Courtesy of Corning Glass Works, Corning, New York

THE table and nomographs on these pages (204, 206, and 208) are of help in estimating requirements when using Pyrex glass cascade coolers. The nomographs are based on the Dittus-Boelter equation plus exhaustive tests.

It is suggested that a coolant rate of one gal per min per ft of upper tube be assumed when estimating terminal temperature differences.

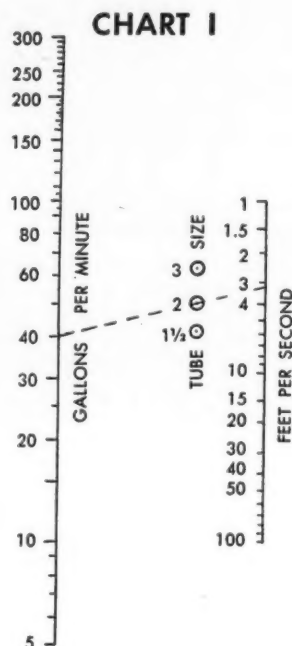
Where it is absolutely necessary to meet the specified outlet temperature of the cooled fluid, it may be advisable to make allowances in the design for unforeseen circumstances. Extra cooling capacity can be obtained by operating with more cooling water than had been assumed in the design. Where this is not desirable, it may be well to allow a "safety factor" of 15 to 20% when estimating the number of tubes required.

Example:

We wish to cool 40 gpm of 100% ethyl alcohol from 160 to 100°F. River water is available at 70°F. Let us assume the water temperature rise is 15°F.

From handbook, properties of ethyl alcohol at 130°F are: specific gravity — 0.78; specific heat — 0.597; viscosity — 0.67 cp.

(Continued on page 206)



FLUID CONSTANT—C*														
LIQUIDS									GASES					
LIQUID	HEATING— $C_h = c_p \cdot k \cdot \mu^{0.4}$				COOLING— $C_c = c_p \cdot k \cdot \mu^{0.5}$				GAS	HEATING & COOLING— $C_g = c_p \cdot k \cdot \mu^{0.4}$				
Temp. °F.	50	100	150	200	50	100	150	200	Temp. °F.	0	100	200	300	400
Acetic acid (100%)	—	3.76	3.91	4.06	—	2.78	2.89	3.03	Acetone	—	.153	.176	.202	.243
Acetic acid (50%)	4.53	6.05	6.96	7.87	3.30	4.71	5.35	6.93	Acetylene	.188	.205	.221	.236	.251
Acetone	4.75	5.23	5.33	5.45	4.00	4.50	4.62	4.73	Air	.147	.153	.159	.164	.167
Ammonia	16.40	19.50	23.00	26.50	14.70	19.60	25.10	30.70	Ammonia	.222	.245	.261	.276	.289
Amyl acetate	2.56	2.61	2.76	3.03	1.97	2.03	2.07	2.21	Benzene	—	.138	.165	.198	.233
Amyl alcohol (iso)	1.38	2.05	2.82	3.70	.89	1.42	2.08	2.85	Butane	.180	.215	.235	.252	.265
Aniline	1.72	2.30	3.01	3.91	1.23	1.75	2.45	3.36	Carbon dioxide	.113	.123	.130	.137	.143
Benzene	2.88	3.60	4.10	4.61	2.44	3.13	3.69	4.23	Carbon monoxide	.145	.153	.161	.167	.173
Brine (CaCl ₂)—(25%)	7.54	9.93	12.80	16.20	5.83	8.33	11.10	15.20	Chlorine	.064	.067	.069	.071	.073
Butyl alcohol (n)	1.79	2.46	3.27	4.23	1.21	1.75	2.45	3.25	Chloroform	—	.073	.080	.087	.094
Carbon disulfide	4.58	4.82	4.96	5.06	4.28	4.50	4.68	4.86	Ethane	.187	.215	.243	.271	.298
Carbon tetrachloride	2.70	3.07	3.22	3.35	2.16	2.61	2.80	2.95	Ethyl acetate	—	.144	.170	.194	.217
Chlorobenzene	2.85	3.07	3.13	3.19	2.23	2.35	2.47	2.52	Ethyl alcohol	—	.205	.213	.221	.229
Chloroform	3.80	4.43	5.05	5.67	3.35	3.75	4.15	4.53	Ethyl chloride	.121	.138	.148	.153	.159
Ethyl acetate	4.87	4.82	4.77	4.73	3.27	3.27	3.23	3.23	Ethylene	.180	.205	.227	.250	.272
Ethyl alcohol (100%)	2.88	3.60	4.35	5.15	2.14	2.78	3.47	4.23	Ethyl ether	.182	.205	.230	.258	.289
Ethyl alcohol (90%)	4.12	6.40	9.02	11.50	2.73	4.71	6.83	8.95	Helium	.823	.850	.876	.90	.926
Ethyl bromide	4.02	4.24	4.40	4.58	3.63	3.90	4.13	4.37	Hydrogen	1.82	1.90	1.98	2.05	2.13
Ethylene glycol (50%)	3.99	6.05	8.48	11.40	2.83	4.71	7.20	10.30	Hydrogen sulfide	.113	.123	.132	.140	.148
Ethyl ether	4.53	4.82	5.10	5.40	3.78	4.16	4.50	4.83	Methane	.291	.313	.329	.341	.354
Ethyl iodide	3.76	4.43	5.05	5.71	3.67	4.32	4.97	5.62	Methyl chloride	.095	.113	.131	.148	.165
Glycerol (50%)	3.46	5.01	6.96	9.27	2.30	3.66	5.30	6.95	Nitric oxide	.138	.144	.148	.153	.155
Heptane	3.31	3.60	3.89	4.25	2.85	3.13	3.40	3.72	Nitrogen	.154	.161	.166	.169	.172
Hexane	3.60	3.91	4.18	4.38	3.04	3.38	3.69	3.96	Nitrous oxide	.117	.119	.121	.124	.126
Methyl alcohol (100%)	4.19	4.82	5.30	5.75	3.50	4.16	4.65	5.15	Oxygen	.138	.144	.148	.152	.155
Methyl alcohol (90%)	4.40	5.23	5.90	6.60	3.55	4.32	4.92	5.50	Pentane (iso)	.180	.205	.234	.266	.305
Methyl alcohol (40%)	4.28	8.40	8.31	10.50	3.10	4.93	6.85	9.18	Sixam	—	.230	.237	.244	.253
Octane (n)	3.06	3.33	3.56	3.76	2.50	2.78	3.03	3.22	Sulfur dioxide	.072	.077	.081	.085	.088
Pentane (n)	4.02	4.24	4.40	4.54	3.49	3.75	3.94	4.13						
Propyl alcohol (iso)	1.91	2.77	3.65	4.55	1.28	2.03	2.82	3.66						
Sulfur dioxide	6.63	6.77	6.98	7.25	6.00	6.24	6.40	6.68						
Sulfuric acid (60%)	2.54	3.07	3.65	4.27	1.59	2.13	2.62	2.90						
Toluene	3.38	3.76	4.05	4.35	2.75	3.13	3.48	3.76						
Water	8.68	12.40	15.10	17.50	7.04	10.70	13.90	16.70						

*Note: Base this constant on average temperature of fluid being cooled. Interpolate for intermediate values.

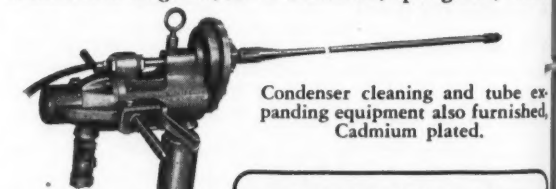
*Note: Base this constant on average temperature of fluid being cooled. Interpolate for intermediate values.



TUBE CLEANING EQUIPMENT THAT'S ACID-RESISTANT by AIRETOOL

Here's important news for chemical plants whose tubes and pipes handle acids which corrode tube cleaning equipment. AIRETOOL will, now, provide Cadmium plated tube cleaners, including motors, which will resist corrosion due to acid conditions encountered when cleaning tubes.

This development offers an important saving in adding life and usefulness to tube cleaning equipment at very little cost. For full particulars, write immediately to The AIRETOOL Mfg. Co., 331 S. Center St., Springfield, Ohio.



Condenser cleaning and tube expanding equipment also furnished. Cadmium plated.

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There's an AIRETOOL Tube Cleaner and Tube Expander for every type of tubular construction. When inquiring check CP 2144 on handy form, pgs. 2-4.

CHEMICAL PROCESSING

(Continued from page 203)

per se. Discussion here covers surface storage of explosives, with particular emphasis on the construction and ventilation of magazines. Other material describes methods for the destruction of damaged or unwanted commercial explosives, chemical warfare agents, high and low explosives.

Among the "high" group (those which decompose by detonation) are acetylides, azides, fulminates, organic and inorganic nitrates, nitroglycerin, and picric acid. The "low" group (those that burn progressively over a relatively sustained period of time) lists: permanganates, peroxides, and sodium hypophosphite.

Another industrial hazard treated in this tome are fungus diseases. This section starts with a table of occupations in which fungus infections are likely to occur. Following this is a brief description of every known fungus disease, its prevention and cure. Fungicides and their place in the scheme of hazardous materials is also discussed in this section.

Maximum allowable concentration, properties, treatment and antidotes, precautionary measures, etc., are discussed under various of the chemicals.

Radiation hazards as associated with the release of atomic energy are considered in a fourth section. A tremendous amount of information is given here by means of a series of charts which give all of the radioactive isotopes along with the characteristics of the emitted radiation.

Final section contains a complete, up-to-date set of Interstate Commerce Commission shipping regulations. To obtain "Handbook of Dangerous Materials", remit \$15 direct to Reinhold Publishing Corp., Dept. CP, 330 W. 42nd St., New York, N. Y. When inquiring specify CP 2145 on handy form, pages 2 and 3.

Application of punched cards to industry and science

Primary aim of 506-page volume is to furnish sufficient information to permit the application of punched-card techniques to individual problems — whether in the laboratory, industrial plant, library, executive office. Additionally, the text endeavors to set down present knowledge and experience so that better use of presently available punched-card devices will be stimulated. In general, hand-sorted edge-punched cards are discussed in greater detail than machine-sorted cards.

Part I is introductory and elementary. It contains sufficient information to enable an individual to set up and use a simple punched-card file. Part II consists of case histories of punched-card applications selected to show what already has been done. More general and theoretical in scope is Part III. Some of the chapters here consider the general problem of organizing information apart from punched-card techniques.

Part IV is a study as to the role that punched cards and related devices may eventually play in relationship to other methods for coping with information problems. Part V consists of a bibliography on uses of punched cards in connection with scientific information.

Chapters have been written by different authors with the entire work being edited by Robert S. Casey of W. A. Sheaffer Pen Co. and James W. Perry of Massachusetts Institute of Technology. To obtain "Punched Cards", remit \$10 direct to Reinhold Publishing Corp., 330 W. 42nd St., New York, N. Y. When inquiring specify CP 2146 on handy form, pages 2 and 3.

TYPICAL WIGTON-ABBOTT SERVICE IN THE PROCESS ENGINEERING FIELD

economic surveys and analyses

5 WIGTON-ABBOTT SERVICES TO THE CHEMICAL INDUSTRY

DESIGN AND CONSTRUCTION FROM PILOT PLANT DATA

ECONOMIC SURVEYS AND ANALYSES

PROCESS DESIGN FROM CLIENT'S FLOW SHEET

THE DEVELOPMENT OF A NEW PROCESS

CONVERSION OF EXISTING FACILITIES

CAN your product—or contemplated product—be manufactured competitively at the location you are considering for a new plant? Wigton-Abbott engineers are prepared to furnish comparative economic surveys and analyses on your proposed products, based upon such factors as capital investment, operating costs, availability of labor, raw materials and utilities, transportation and markets for any sites under consideration. This is one phase of the 5-point service to the chemical industry offered by the Wigton-Abbott Corporation. Let us discuss your entire plant construction problem with you and show you how Wigton-Abbott can help you every step of the way.

• Yours for the asking

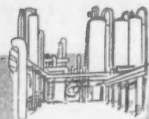
"Packaged Plant Construction".
Reading time, only 10 minutes—
but it will save you many hours
by answering basic questions.



Wigton-Abbott Corporation

DESIGNERS...ENGINEERS...CONTRACTORS...PLAINFIELD, NEW JERSEY

When inquiring check CP 2147 on handy form, pgs. 2-3



Processing and Engineering Data



(Continued from page 204)

CHART II

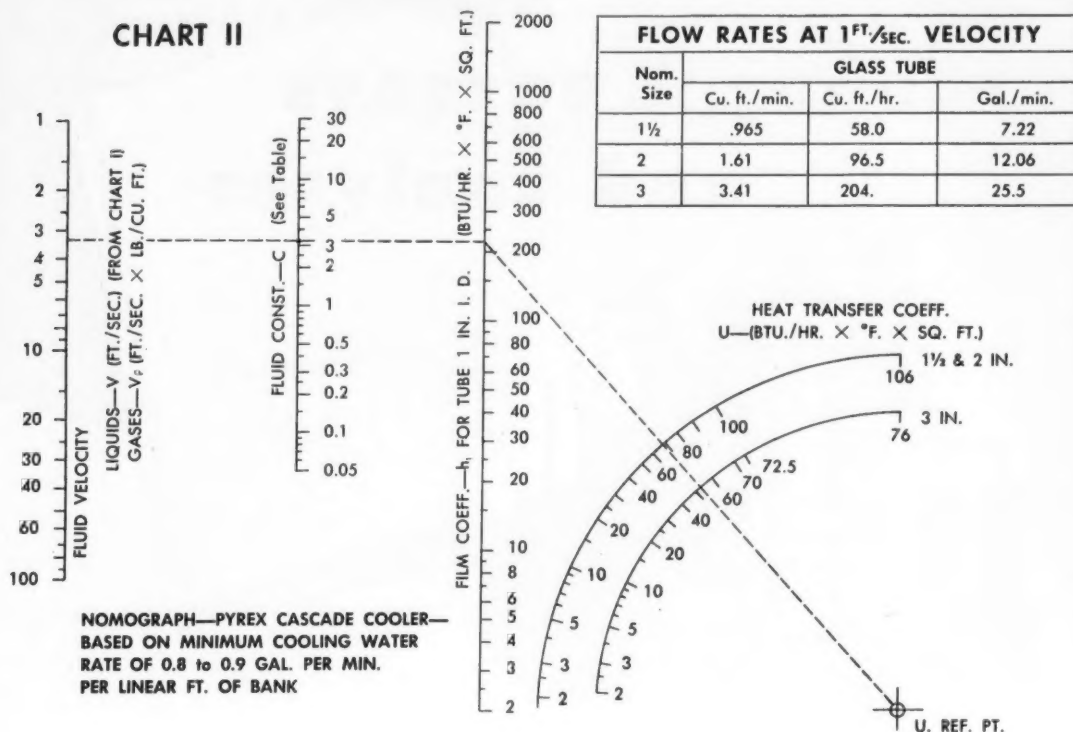
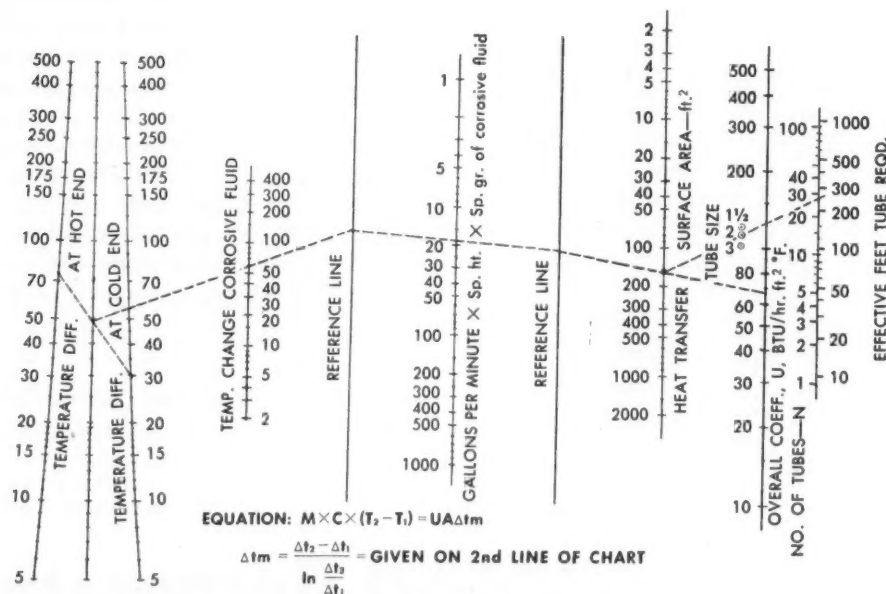


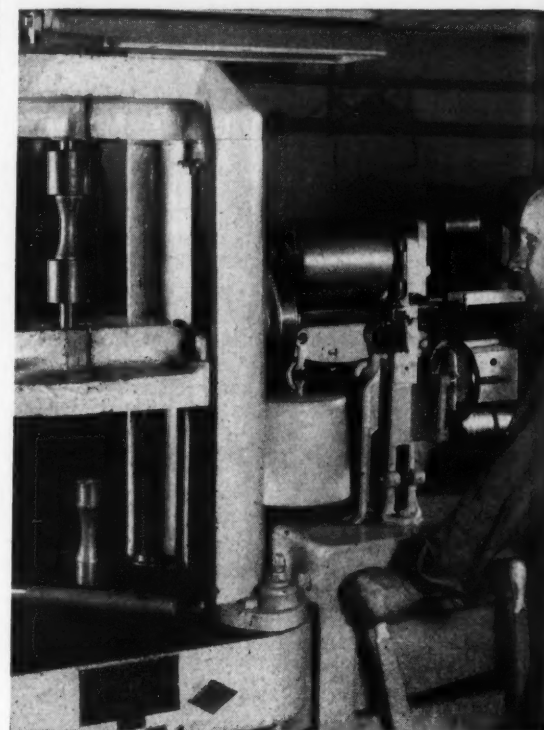
CHART III



(Continued on page 208)

CHEMICAL PROCESSING — APRIL, 1952

SECOND OF A SERIES



"K" ON A FITTING MEANS High Tensile Strength

The standard A.S.T.M. specification of tensile strength in cast fittings is 21,000, psi., but "K" fittings substantially exceed that requirement.

Every charge is controlled for closeness of grain structure and the elimination of porosity; also machinability to assure precision threading and chamfering, so necessary for easy make up and tight joints.

"K" fittings test high—actually exceed code requirements. They are also Underwriters' laboratory approved.

The "K" line includes:

- Standard and Extra Heavy Screwed Steam Fittings.
- Standard and Extra Heavy Flanged Fittings.
- Standard and Extra Heavy Companion Flanges.
- Standard Sprinkler Fittings.
- Standard Drainage Fittings, Black and Galvanized.
- Standard Bushings, Plugs, Flange Unions.

A "K" catalog will be sent to important users of fittings requesting it on company stationery.

THE KUHN'S BROTHERS CO.

1818 McCall St., Dayton 1, Ohio

Established 1887

K CAST-IRON FITTINGS

3,000 SHAPES AND SIZES

When inquiring check CP 2148 on handy form, pgs. 2 and 3

CHEMICAL PROCESSING

Plots curves and specifications on variable-area flow meters

Handbook compares variable-area and variable-head flow meters according to flexibility, pressure drop, flow measurements, and accuracy. Six meter styles are illustrated and designed to meet requirements of large and small pressures, temperatures, and flow rates. Applicable data for metal, beaded glass, and plain tapered glass meter tubes are tabulated. Capacity tables guide selection and sizing of meters using 2, 5, and 10" scale length glass tubing.

Metering floats are also sectionally illustrated and thermal expansion curves of six models are plotted. Prediction curves permit determination of tube taper, flow coefficient, and influence of viscosity. Handbook is concluded with section on proper method of altering meter's capacity. Handbook "Variable-Area Flow Meter" is issued by Fischer & Porter Company, Dept. CP, Hatboro, Pa. When inquiring specify CP 2149 on handy form, pages 2 and 3.

Appearance of 2nd edition on absorption and extraction

Constituting a part of the Chemical Engineering Series, this edition on the subject of mass transfer between phases is a thorough revision of an earlier work (1937). Although the general sequence of subject matter has been followed, little of the original material has been retained in its earlier form.

Two chapters have been added: Chapter II describes the elementary concepts of fluid friction and turbulence as a basis for an understanding of eddy diffusion and of the analogies between heat, mass, and momentum transfer; and Chapter III summarizes the data on mass transfer to simple solid shapes and is based largely on experiments in which liquids were allowed to evaporate into gas streams.

Other material covers the following topics: simultaneous heat and mass transfer, design principles for absorption equipment and multicomponent systems, gas-absorption equipment, performance of absorption equipment, simultaneous absorption and chemical reaction, and solvent extraction.

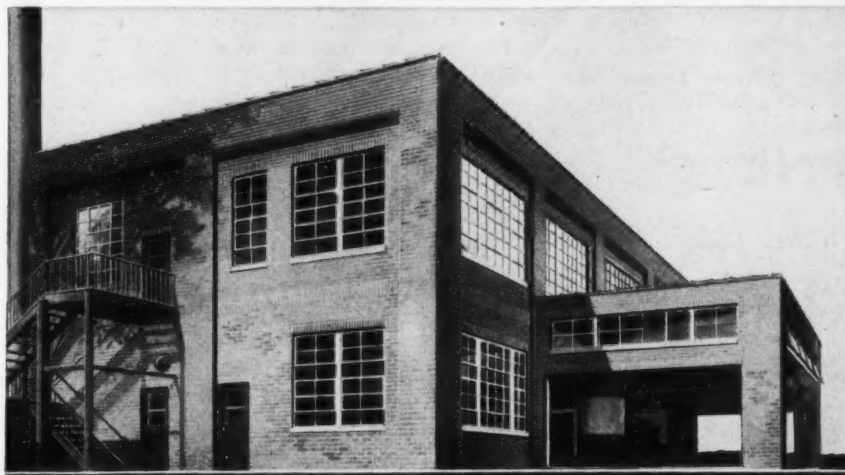
Solubility and equilibrium data on gas-liquid and liquid-liquid systems have been omitted, since the inclusion of the necessary tables would duplicate other recent summaries. "Absorption and Extraction" is published by McGraw-Hill Book Co., Inc., Dept. CP, 327 W. 41st St., New York 18, New York.

Preventative maintenance service in lab and field

Two-color folders illustrate preventative maintenance services available on a national scale. Twelve-page catalog presents laboratory methods of inspecting machine parts and benefits to the employer from timely inspection. Use of magnetic field, fluorescent penetrant, and an electrostatic effect are among the seven methods utilized in laboratory examination.

Field inspection services offered are summarized in four-page folder. Applicable case histories are included with the six methods of detecting faulty welds, fractures, leakage, etc. "Magnaflux Laboratory Inspection" and "Magnaflux Field Inspection Service" are issued by Magnaflux Corporation, Dept. CP, 5900 Northwest Highway, Chicago 31, Ill. When inquiring specify CP 2150 on handy form, pages 2 and 3.

THESE PICTURES SHOW WHY BIRD IS YOUR PRIME SOURCE OF HELP ON FILTRATION PROBLEMS



The Bird Research and Development Center — an entire building devoted exclusively to the solving of separation problems, staffed with experienced engineers and equipped with complete facilities for pilot scale findings.



The Main Test Floor — 5000 sq. ft. of floor space, provided with all the necessary facilities set up and ready for operation. Substantial volumes of test materials can be handled and actual operating conditions can be duplicated in most cases.



The Analytical Laboratory — modernly equipped in every respect. Analytical work proceeds as tests progress so that full operating information is available as soon as tests are completed.

Because of this range of equipment, findings are impartial. Bulletins describing the Test Center and each of these machines are yours for the asking.

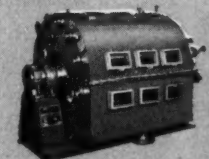
BIRD MACHINE COMPANY
South Walpole • Massachusetts



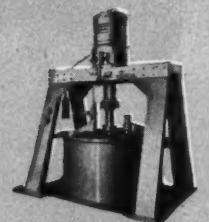
The Bird Continuous Centrifugal Filter — for separation of solids from thick or thin, hot or cold slurries. Solids may be one micron or half inch size. Solids may be thoroughly washed when desired. Operation is completely under cover — clean. No filter cloths or media, no vacuum or auxiliaries. Wide range of sizes.



The Bird Screen Centrifugal Filter — for continuous filtration of crystalline or granular materials. With relatively coarse solids and thick slurries it delivers 96 to 98% dry solids. Frequently less than 0.1 lb. wash liquor is needed per lb. of solids. The wash liquor may be kept separate from the mother liquor when desired.



The Bird-Young Vacuum Filter — for continuously efficient separation of either slow or free filtering solids. Complete removal of filter cake is effected by air. Readily fume-proofed. In sizes to meet wide capacity range.

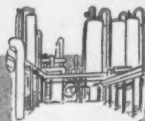


The Bird Suspended Centrifugal — for heavy duty, high capacity batch centrifuging; gyro-balanced suspension head; 26", 40" or 48" basket, perforate or imperforate; fume-tight if need be.



The Bird Centrifugal Classifier — for wet separation according to particle size, the over size discharged as a well drained cake, the fines discharged with the liquid. Sharp cuts effected by forces as high as 1800 times gravity.

When inquiring check CP 2151 on handy form, pgs. 2-3



Processing and Engineering Data



(Continued from page 206)

Using countercurrent flow, the temperature difference at hot end is 75°F, at cold end it is 30°F. Temperature change of fluid being cooled is 60°F.

For this flow rate, let us try 2" tubes. From Chart I, we note that 40 gpm through 2" tubes gives a lineal velocity of 3.3 ft/sec.

Refer now to Fluid Constant Table where we find the value for ethyl alcohol is 3.19 (interpolated for 130°F avg temp).

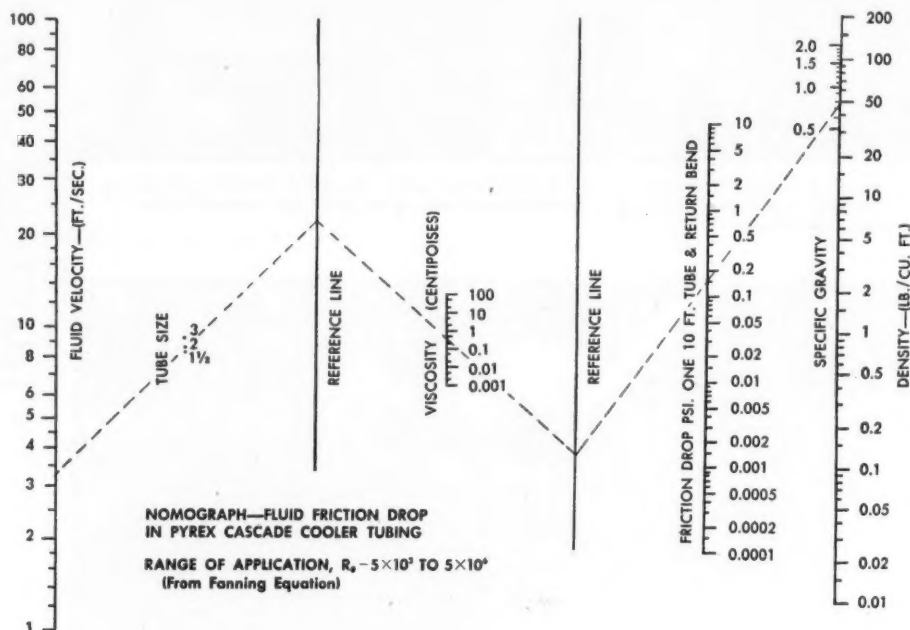
Now, we follow Chart II from velocity line at 3.3,

through fluid constant line at 3.19 and intercept h_1 line. Projecting from this intercept to the U Reference Point, we read overall coefficient, U, for 2" tubes at 68 Btu per hour per sq ft per degree F.

For number of tubes, we can use Chart III which indicates 28 tubes.

We can now determine pressure drop from Chart IV using these values: viscosity — 0.67 cp; density — 48.7 lb/cu ft; velocity — 3.3 ft/sec. This turns out to be 0.16 psi per tube, or 4.5 psi for 28 tubes.

CHART IV



The editors would like to see any original nomographs you have that apply to chemical processing. Why not share those you have with fellow processors? Readers are invited to submit their nomographs for possible publication. For each one published, CHEMICAL PROCESSING will pay \$10. . . so not only do you help the field, but you also make a little pocket money.

CHEMICAL PROCESSING — APRIL, 1952

BE COMPETITIVE

27.03%
price increase
since 1937

INDUSTRIAL PUMP DIVISION
OBERDORFER FOUNDRIES, INC.
SYRACUSE, NEW YORK

When inquiring check CP 2152 on handy form, pgs. 2-3

CHEMICAL PROCESSING APRIL

Outlines level control devices for boilers, tanks

One-page illustrated bulletin outlines manufacturer's diaphragm regulating valve (Class DL) and a control pilot (air or water operated) to assure accuracy in floatless level control.

When used together, the instruments may be applied to level control of acids, water, oil, gasoline, alcohol, solvents, chemical solutions, etc., and are applicable to boiler level control for working pressures up to 300 psi eliminating many accessories usually required for that operation.

Some of the advantages listed in the bulletin by the manufacturer include: 1) easy installation, 2) floatless (has no floats, float cages or float chambers), 3) uses air or water as the operating medium, 4) accuracy of regulation (gives control within plus or minus 1" of water column), 5) simplified design, 6) a diaphragm pressure element, 7) reversible action possible by reversing connections to the diaphragm.

Separate engineering data sheets show applications and describe operation of the regulating valve (made in sizes 1/2 to 10") and the floatless level pilot (suitable for maximum tank pressures up to 300 psi).

Bul PC-37 and engineering data sheets PC-39-A, PC-48, and PC-52 are issued by the Leslie Company, Dept. CP, Lyndhurst, N. J. When inquiring specify CP 2153 on handy form, pages 2 and 3.

Brief and lucid text on oil, fat and soap

Highly technical or involved chemical discussions are at a minimum in this 230-page primer of the oil, fat and soap industry. Purpose being to make the material more lucid and to reach a wider audience — which it does quite successfully. Anyone (chemists, engineers, salesmen, etc.) contemplating entering or already in these fields will find a good over-all picture of raw materials, manufacturing processes and analytical procedures. Definitions are given and examples are cited to illustrate commercial practice.

After a very brief introduction dealing with the history of the topic, the book treats in turn: vegetable oils, animal and vegetable fats, soap manufacture, and specialty soaps and processes. Other topics dealt with in separate chapters are: fatty acids and glycerin, synthetic surface-active agents and miscellaneous tests, analysis of oils and fats, and analysis of soap and soap products.

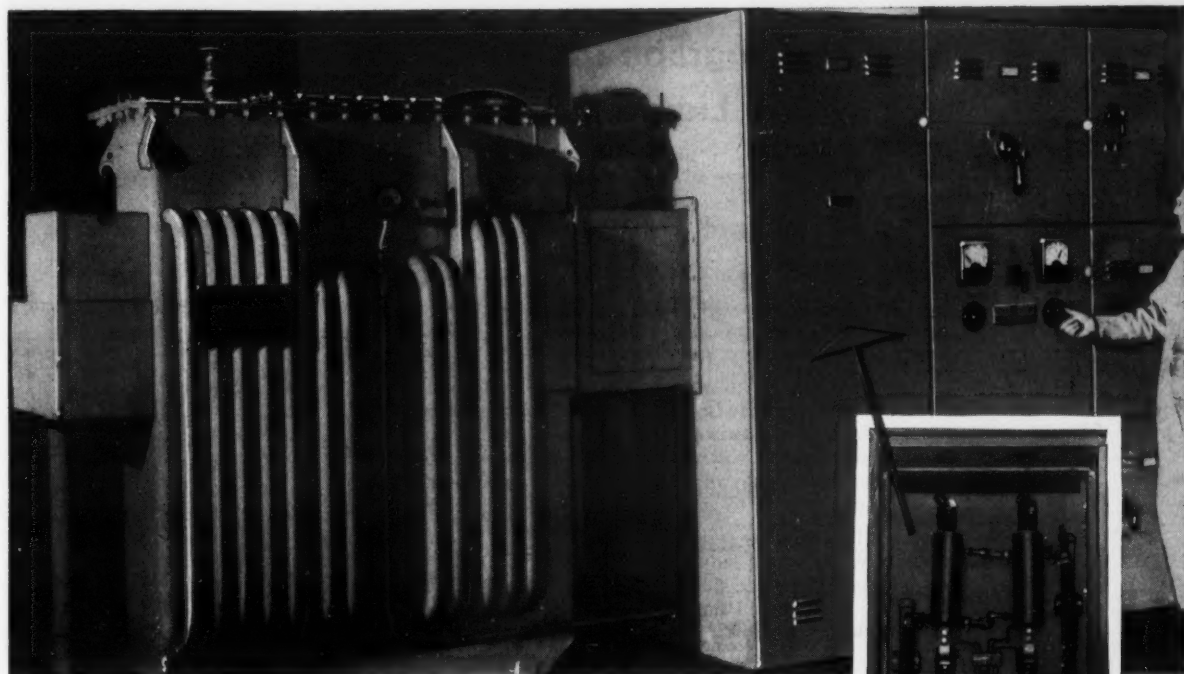
A brief appendix rounds out the tome. To obtain "Oil, Fat and Soap," remit \$6 direct to The Chemical Publishing Co., Inc., Dept. CP, 212 Fifth Ave., New York 10, N. Y. When inquiring specify CP 2154 on handy form, pgs. 2 & 3.

Illustrates relays for street lights

Two-page illustrated bulletin describes mercury plunger relays developed especially for street lighting purposes. Standard 30 amp relays, mounted in weather-proof housing, may be had with or without fused coil circuits, fused load circuits, and lightning arrestors. Unit is designed for either normally open or normally closed pilot circuits. Complete specifications are included.

"Mercury Plunger Relays for Street Lighting Control", (Form No. 866) is issued by H-B Instrument Co., Dept. CP, 2633 Trenton Ave., Philadelphia 25, Pa. When inquiring specify CP 2155 on handy form, pages 2 and 3.

Now, St. Paul Foundry & Mfg. Co. buys all its power; saves \$25,000 annually!



Costly, Inefficient Steam Generating Plant Replaced by

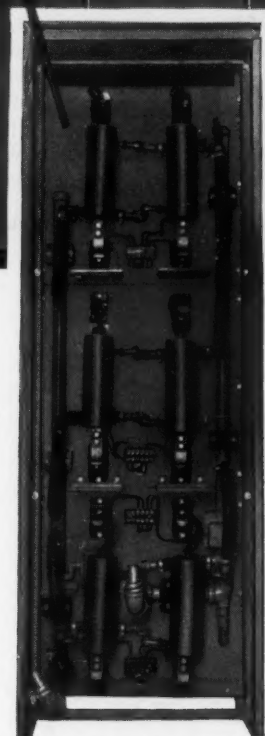


D-C UNIT SUBSTATION

Boiler capacity for cold weather heating is all that the St. Paul (Minn.) Foundry and Mfg. Co. retains of its former steam-driven d-c generating plant. By using purchased power, the company saves \$25,000 annually in fuel, operating, and maintenance costs.

Purchased power is a-c, but the plant requires d-c power for yard cranes and hoists. To tie these two systems together, a six-tube G-E sealed ignitron rectifier was installed. It operates 24 hours a day, 7 days a week.

General Electric d-c unit substations with modern sealed ignitron rectifiers occupy minimum space. The transformer, rectifier and low-voltage switchgear are supplied as a complete, metal-enclosed, packaged unit. Absence of exposed, energized parts provides maximum protection to personnel. For information on d-c unit substations to fit your d-c power needs, call or write your nearest G-E sales office. General Electric Company, Schenectady 5, N. Y.



This photo shows the simple, compact design of the G-E ignitron mercury-arc rectifier unit.

No major moving parts to wear out.
No bearings or brushes to check.
No vacuum pump required.

GENERAL ELECTRIC

324-4

When inquiring check CP 2156 on handy form, pgs. 2-3



Nomograph for Pressure Drop in Liquid Ammonia Lines

C. J. Major,
Associate Professor of Chemical Engineering,
State University of Iowa, Iowa City, Iowa

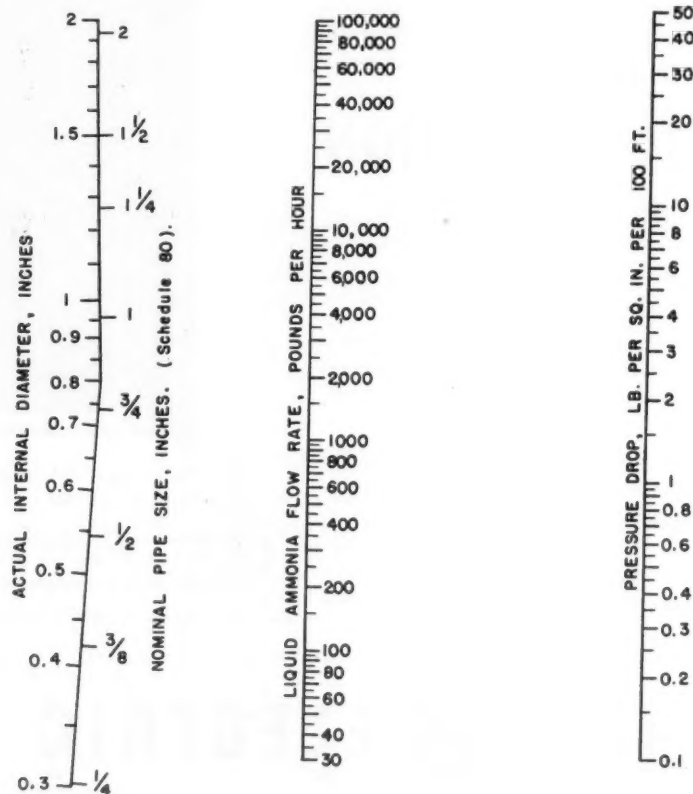
THE accompanying nomograph offers a convenient means of estimating pressure drop in lines carrying liquid ammonia at flow rates between 30 and 100,000 lb/hr in various sizes of steel pipe. The chart was constructed by methods outlined by Davis¹ using pressure drop data calculated by means of a special purpose slide rule² which solves the Fanning equation. The nomograph is applicable over a liquid temperature range of -20 to +100°F.

The use of the chart is illustrated as follows: What is the pressure drop when liquid ammonia flows through a 1" extra heavy (Schedule 80) steel pipe at the rate of 2000 lb/hr? Connect 1 on the nominal pipe size scale with 2000 on the flow rate scale and

note the intersection with the pressure drop scale at 1.1 psi/100' of pipe.

What size pipe is required to handle 1000 lb/hr of liquid ammonia if the available pressure drop is 1 psi/100' of pipe? Connect 1 on the pressure drop scale with 1000 on the flow rate scale and read 0.73" on the diameter scale at the left. The nominal pipe size would therefore be 3/4".

What rate of flow of liquid ammonia is obtained in a 1" Schedule 80 pipe if the pressure drop is 2 psi/100'? Connect 1 on the nominal pipe size scale at the left with 2 on the pressure drop scale at the right and then read 2700 lb/hr on the flow rate scale.

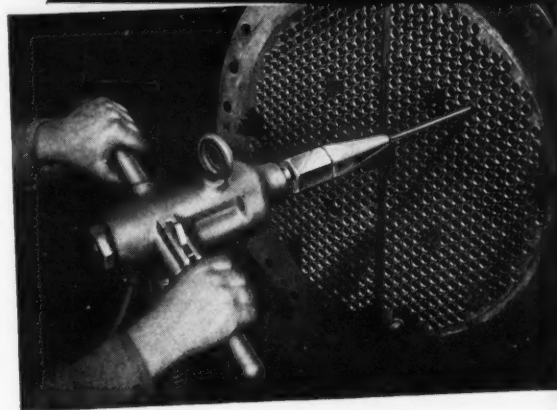


REFERENCES

1. Davis, D. S., "Empirical Equations and Nomography," Chap. IX, New York, McGraw-Hill Book Co., 1943.
2. "Liquid Flow Slide Rule," C. J. Major Co., Iowa City, Iowa. (This slide rule was previously described in CHEMICAL PROCESSING, May, 1949.)

CLEANS Fouled Heat Exchanger Tubes QUICKLY...

WILSON TP-301 CLEANER



This high speed tube cleaner is designed to increase output and minimize down-time. The improved Model TP-301 is the only tube cleaner which can remove deposits from completely plugged heat exchanger tubes . . . and other fouled straight tubes heretofore not considered practical to clean.

Many improvements, resulting from years of field experience, have been built into the new TP-301 cleaner.

- **MORE POWERFUL**—operating speed up to 3500 RPM at 90 psi utilizing 130 cfm.
- **LIGHTER WEIGHT**—only 15 lb.
- **SHORTER**—only 13" overall.
- **INCREASED CAPACITY**—from 3/8" up to 2 1/2" or even 3" O.D. tubes up to 40 ft. in length.
- **LOW AIR PRESSURE**—operates on air pressure as low as 50 lb.
- **LOW HEAD ROOM NEEDED**—minimum practical working head room 5 ft.
- **COSTS LESS** than previous models.

VARIOUS CARBIDE BITS AVAILABLE



Send for Bulletin giving complete details on this man-hour and money-saving tube cleaner

WILSONIZE TO ECONOMIZE

THOMAS C. WILSON, INC. 21-11 44th AVENUE, LONG ISLAND CITY, N.Y.
CABLE "TUBECLEAN" NEW YORK

WILSON

TUBE CLEANERS • TUBE EXPANDERS

When inquiring check CP 2157 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Spiral conveyors for varied applications

Two-color catalog describes spiral conveyor and fittings in 48 pages. Sectional drawings with table of dimensions illustrate bearings, drive shafts, hangers, hub boxes, spouts, and valves. Materials which can be handled by spiral conveyor are listed with the proper model. Capacity tables indicate proper conveyor, and hp factor is included for determining power requirements.

Flights and fittings listed follow established industrial standards and are interchangeable with other standard makes when specified for replacement service. Six principal conveyor types presented are sectional flight, helicoid, mixer, cut flight, ribbon, and cast iron. Cat 803B is issued by the Jeffrey Manufacturing Company, Dept. CP, 956 N. Fourth St., Columbus 16, Ohio. When inquiring specify CP 2158 on handy form, pages 2 and 3.

Leaflet discusses ion exchanger

Alkalinity-reducing ion exchanger for use in boiler plants where raw water alkalinites are high and chlorides and sulfates are in a moderate range is discussed in manufacturer's informative leaflet on water conditioning.

Leaflet includes graphic illustration of the simplicity of the exchanger and its effectiveness in controlling hardness, total alkalinity and CO₂ in the steam in contrast to other methods which have been used.

This salt-splitter system is particularly suitable for treating make-up for boilers where the steam is used up and a large percentage of condensate is not returned. Advantages and applications of the new exchanger are also given.

Leaflet 28X7808 is issued by the Allis-Chalmers Mfg. Co., Dept. CP, 1151 S. 70th St., Milwaukee, Wis. When inquiring specify CP 2159 on handy form, pages 2 and 3.

Gives information on vertical pumps

Illustrated and briefly described in manufacturer's 8-page bulletin are various arrangements and construction types commonly used with vertical pumps.

Constructions covered in the bulletin include: vertical submerged (sump type) for inside mounting, outside mounted, dry, sump pumps, high-vacuum low-npsh pumps, dual discharge pumps, and propeller pumps for irrigation, drainage, and circulating duty.

Bul 251 is issued by Lawrence Machine and Pump Corporation, Dept. CP, 371 Market St., Lawrence, Mass. When inquiring specify CP 2160 on handy form, pgs. 2-3.

Gives much data on plastic laminates

Containing 17 pages, catalog presents properties and applications of manufacturer's laminated plastics. Products in two classifications are covered: laminates conforming to NEMA specifications, and those special grades for specific uses. Also listed are NEMA tolerance data on laminated sheets, rods, and tubes, and information on sizes and thicknesses available.

Suggestions are offered in catalog for fabricating parts from laminated plastics. "Laminated Insurok" is issued by The Richardson Co., Dept. CP, 2765 Lake St., Melrose Park, Ill. When inquiring specify CP 2161 on handy form, pages 2 and 3.

APRIL, 1952

Do you know how many jobs this vertical turbine pump can do?

We don't—but we'd like to! We've got an idea there are lots more than you might think.

Let's first take a look at the four inherent characteristics of vertical turbine pumps that make them the versatile units they are.

1. THE DRIVE UNIT IS REMOTE AND SEPARATE FROM PUMPING ELEMENT. The pump always operates submerged. No priming. No expensive dry pits, no suction or NPSH problems.

2. SPACE REQUIREMENTS AT A MINIMUM. Because of its vertical design, the vertical turbine pump takes less floor space than other types.

3. MECHANICAL AND HYDRAULIC FLEXIBILITY. Will operate with any type of drive. Discharge can be positioned to user requirements.

Can be close coupled or several hundred feet long. Meets head and capacity requirements by varying the number of duplicate stages.

4. IT'S A SIMPLE MACHINE. Uni-directional thrust minimizes alignment problems. Easy maintenance, few moving parts, little friction, long life.

Have you thought of a vertical turbine pump for your application? We'd like to hear from you, send you full information on Worthington vertical turbine pumps—newest and broadest line of its kind, built by the oldest manufacturer of pumping equipment.

Worthington Pump and Machinery Corporation, Vertical Turbine Pump Division, Denver 16, Colo.; Succasunna, N. J.

CHECK WORTHINGTON AGAINST THE REST

Only Worthington has all 8 vital design features as standard equipment.

The Ten Leading Makes Of Vertical Turbine Pumps ✓ Indicates Feature Is Standard									
Standard Features	Worthington	Pump A	Pump B	Pump C	Pump D	Pump E	Pump F	Pump G	Pump H
Seals above and below drain parts (oil-lubricated model)	✓								
Wearing rings	✓				✓			✓	
Enclosed impellers	✓	✓	✓	✓	✓	✓		✓	✓
Bronze bushings in bowl assembly	✓		✓	✓	✓	✓		✓	✓
Flanged and bolted bowls on all sizes	✓						✓		✓
Sand collars at both ends of bowl assembly (water-lubricated model)	✓	✓							
Grease-packed bottom bearing	✓	✓			✓				✓
Choice of oil or water lubrication	✓	✓	✓	✓	✓	✓		✓	

The reasons why Worthington Vertical Turbine Pumps are out in front of competition.



CENTRIFUGAL



ROTARY



STEAM



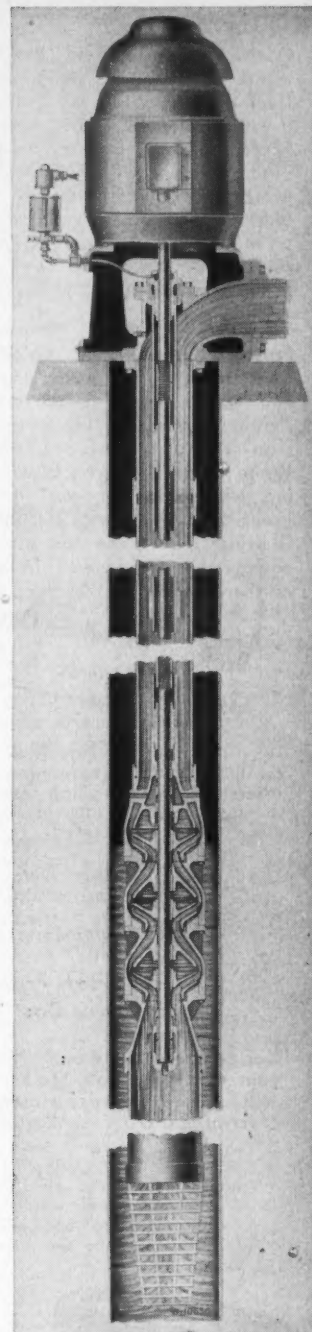
POWER



VERTICAL TURBINE

The World's Broadest Line Assures You The Right Pump For Every Job

When inquiring check CP 2162 on handy form, pgs. 2-3



Typical section of the Worthington oil-lubricated vertical turbine pump that gives most efficient pumping performance at lowest possible cost.

D.1.10

WORTHINGTON

Vertical Turbine Pumps

PROBLEM:

Contact Sulfuric Acid Plant wanted to paint structural steel and transite walls with a white paint that would both improve interior lighting conditions and provide corrosion protection; but "bleeding" tendency of black coal tar paint already on steel made direct application of white paint impossible.

SOLUTION:

Prufcoat Sealer P-25M on all steel work — one coat, one hour drying time — permitted simple application of corrosion-resistant Prufcoat BX White Enamel with no bleeding whatsoever of coal tar paint. Result: An interior that is whiter than white and also completely protected from corrosive fumes.

Prufcoat BX White Over Coal Tar Paint Inside Acid Plant

"Frankly, we felt that asking for both a white finish over coal tar paint and adequate corrosion protection was too much," the Superintendent of this plant recently commented . . . "But Prufcoat came through with the answer. Our plant interior is now beautifully white and Prufcoat protected."

Yes, in plant after plant, wherever conditions are really tough and no matter what color scheme is desired, Prufcoat is stopping profit-eating corrosion and cutting painting maintenance costs . . . on concrete floors, walls, ceilings, structural steel, pipes, tanks, ducts, machinery and equipment.

Coat for Coat, Prufcoat Gives More Protection at Lower Cost Than Any Other Air-drying Paint

Get complete facts on performance-proved Prufcoat before scheduling your next paint job. Or better still, let a Prufcoat corrosion engineer make a preventive maintenance survey of your plant. Write today, describing YOUR corrosion problems.

Send for new Prufcoat catalog describing all Prufcoat Products — Primers, Sealers, and corrosion-controlling Finish Materials.



Preventive Maintenance PAYS

When inquiring check CP 2163 on handy form, pgs. 2-3

Where Acids or Alkalies Destroy Prufcoat PROTECTS



NEW! PRUFCOAT SEALER P-25M

For Use on Problem Surfaces that Require Sealing to Prevent Bleeding and Lifting

Formulated for use as a sealer over staining and bleeding materials such as asphalt, coal tar, oil, pitch, etc., Prufcoat Sealer P-25M also is an excellent intermediary material to use where existing oil paints may lift or wrinkle. In such problem situations, Prufcoat Sealer P-25M air-dries within 1 hour to provide a sealed surface to which Prufcoat finish materials bond securely. Write for Technical Bulletin No. 23.

PRUFCOAT LABORATORIES, INC.
50 East 42nd Street, New York 17, N. Y.

NEW LITERATURE

Offers instruments for sensitive readings

Twenty-page catalog reviews AC and DC galvanometers, dynamometers, and DC amplifiers. Introductory pages summarize requirements in selecting galvanometer according to sensitivity, critical damping resistance and period. Galvanometers are pictured and described in pointer and reflecting types, which may be used in null-balance or calibrated deflection measurements.

Amplifiers are designed for low-level measurement of current and can be utilized as null detectors, recorder pre-amplifiers and direct reading instruments. Features combination of AC amplification and null balance feedback network to eliminate trimmer controls. Specifications and equipment listings are presented in table form.

Cat Section ED is issued by Leeds & Northrup Company, Dept. CP, 4907 Stenton Ave., Philadelphia 44, Pa., When inquiring specify CP 2164 on handy form, pages 2 and 3.

Gives air convector data in 28 pages

Six types of air convectors, with piping connections, roughing-in dimensions, and convector ratings for either steam or hot water, are shown in 28-page catalog (8½ x 11").

Convectors are designed for concealed heating. Various types of heavy-gage steel enclosures are described and illustrated. Among the enclosures covered are those with an outlet on a sloping top for wall mounting; with a semi-recessed projecting panel; with fully recessed flush-front panel; and for free standing.

Convector ratings have been determined in conformance with Commercial Standard CS 140-47. Catalog also includes data on water pressure drop through convectors, a heat emission rate chart, comments on venting, and illustrations of typical installations.

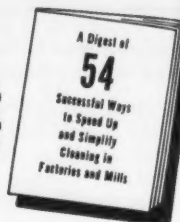
Cat 594 is issued by The National Radiator Co., Dept. CP, Johnstown, Pa. When inquiring specify CP 2165 on handy form, pages 2 and 3.

Tells SFSA methods for welding steel

Methods for welding carbon steel and low-alloy steel castings are given in detail in 40-page illustrated booklet, and are based on recommendations by the Steel Founders' Society of America, which published the booklet.

First section reviews welding methods, second section deals with classifications

Yours FREE— 54 Ways to Cut Cleaning Costs



Here's a 16-page digest full of proved Oakite procedures for saving time and money on 54 big maintenance-cleaning jobs, such as:

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- Desliming humidifiers
- Cleaning conveyor belts
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When inquiring check CP 2166 on handy form, pgs. 2-3

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VORIFLOW® Combustion
Save Fuel and Man Hours!

For light oil, heavy oil, gas and gas/oil firing. Steam generating units from 15 to 500 HP.—15 to 250 p.s.i. Hot water boiler units 30 p.s.i. Reduce operating costs as much as 40% — save man-hours — get clean, dependable heat and hot water. A.S.M.E. Code construction.



Write For Bulletin

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960 Morgantown Rd., Reading, Pa.

BUILDERS OF DEPENDABLE BOILERS SINCE 1885

When inquiring check CP 2167 on handy form, pgs. 2-3

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R-28 Hot 'n Cold Glove,
twin lined insulating,
12" gauntlet, red DuPont
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tremes from -85° to
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how to choose the right glove for each job. *Unbiased advice* — Stanzails include all kinds of liquidtight gloves: all-neoprene, neoprene, and vinyl-coated. 32 styles, weights, sizes. It pays you to select gloves scientifically. Write for your Stanzail catalog today.



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The PIONEER Rubber Company
641 Tiffin Road • Willard, Ohio



OVER 30 Years OF QUALITY GLOVE MAKING

When inquiring check CP 2168 on handy form, pgs. 2-3



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Call a halt to absenteeism and slowdowns due to skin irritations. Use **TARBONIS CREAM**—recommended by industrial physicians everywhere! Clean and neat, easily applied on the job. Helps clear up difficult conditions and protects against recurrence . . . quickly relieves itching and irritation. **TARBONIS** is helping hundreds of plants keep workers on the job . . . why not yours?

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CITY _____ ZONE _____ STATE _____

BY _____ DEPT. _____

When inquiring check CP 2169 on handy form, pgs. 2-3

APRIL, 1952

NEW LITERATURE

of electrodes, with trade names and manufacturers of all classes of electrodes. Final section, comprising one-fourth of the booklet, gives the Society's recommendations for welding procedures on carbon steel and twenty low-alloy steel castings. A list of more than 25 other useful technical articles and reference books is included.

"Recommended Practice for the Welding of Steel Castings" is available, upon letterhead request from engineers and technicians, from Tempil Corporation, Dept. CP, 11 W. 25th St., New York 11, N. Y.

Nozzles and pattern for roof cooling

Two-page bulletin presents sectional illustrations of roof spray nozzles. Featured model gives approximate coverage of 1200 sq ft per gal water per min at 20 psi. According to nozzle pressure, spray diameter ranges from 12 to 24' with coverage of 800 to 1700 sq ft. Roof cooling nozzles are applicable to limited or plentiful water conditions.

Typical roof spray pattern is presented in addition to photographs of cooling systems in operation. Standard nozzles deliver full circle spray, while other models yield half circle spray. Bul 20A is issued by Water Cooling Corporation, Dept. CP, 71 Nassau St., New York 38, N. Y. When inquiring specify CP 2170 on handy form, pages 2 and 3.

Eliminates stuffing box in diaphragm pump

Two-color bulletin surveys piston diaphragm pumps for handling liquid chemicals. Sectional and diagrammatic illustrations are presented in 24-page description of operating features. Hydraulically actuated diaphragm only functions to separate two liquids, and thus eliminates wear. Sealed diaphragm supplants stuffing box.

Halogen family is among list of chemical reagent handled by pumps. Tables of capacity and dimensions are presented for manual and automatically controlled pumps. In automatic models, the pump rate is adjusted by pneumatic instruments. Pumps are particularly useful in refining petroleum, paper and pulp, textile, synthetic and natural rubber products.

Bul 300 is issued by Lapp Insulator Co., Inc., Dept. CP, LeRoy, N. Y. When inquiring specify CP 2171 on handy form, pages 2 and 3.

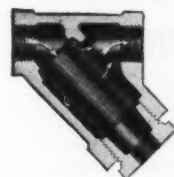


you can lose plenty if you're *UNDER-TRAPPED*

It doesn't pay to skimp on traps . . . especially steam traps. Water and air in steam lines reduces effective temperatures, wastes fuel and adds to maintenance costs.

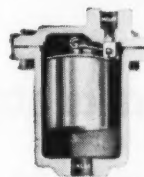
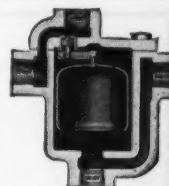
Clark Steam Traps have proven their outstanding drainage efficiency over many years of use in thousands of plants. Now, with the new Duo-Step double-drainage capacity feature, they can handle twice the condensate of ordinary traps.

It will pay you to see your Clark representative or write us for further information.



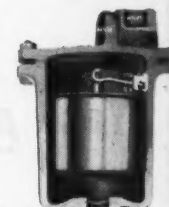
QUICK CLEANING STRAINERS. Remove dirt, scale and grit from steam, fluid and gas lines. Sizes 1/2" to 3" I.P.S.

SERIES "60" INVERTED BUCKET TRAP. Choice of horizontal or vertical inlet or outlet. For pressures up to 150 P.S.I. "Clark-loy" guided disc and seat.



CLARK "701" - D (DUO-STEP) TRAP. A forged steel-trap for pressures up to 500 P.S.I. and temperatures of 750°F. Equipped with "double-drainage" Duo-Step leverage and venting, Clark-loy seats and discs. Pipe sizes 1/2" or 3/4".

SERIES "80" - D (DUO-STEP) TRAP. Cast semi-steel construction for pressures up to 250 P.S.I. and temperatures to 450°F. Equipped with Duo-Step Leverage and Venting, Clark-loy seats and discs. Pipe sizes from 1/2" to 2".



THE CLARK MANUFACTURING CO.
1830 EAST 38th STREET • CLEVELAND 14, OHIO

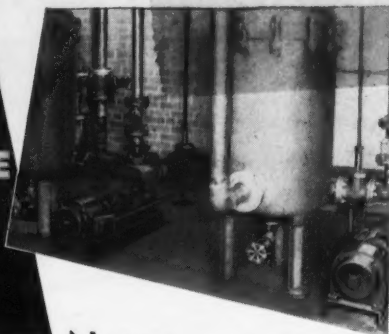
Clark
THE HOME OF DUO STEP LEVERAGE



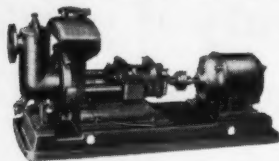
The complete line of dependable fluid controls

When inquiring check CP 2172 on handy form, pgs. 2-3

A NAGLE PUMP IS THE MAINTENANCE MAN'S BEST FRIEND



NAGLE Pumps are designed to eliminate shut-downs and maintenance. The 2 1/2" type "AW" self-priming pumps shown feature an easy-to-clean basket strainer, clamp-on quick-off end plate, readily accessible stuffing box, fast sleeve type slip-page seal adjustment and split-bearing stand—top half lifts off. Pump can be rapidly dismantled. Variety of drives. Water end parts of the corrosion resistant alloy best suited to your needs. No wonder more and more chemical plants are standardizing on Nagles. A wide range of horizontal and vertical shaft pumps — ALL for corrosive and abrasive applications. Get the facts!



TWO 2 1/2" TYPE "AW" PUMPS, SHOWN ABOVE, ARE HANDLING A CHEMICAL SOLUTION AT A MIDWEST PROCESSING PLANT.

NAGLE PUMPS

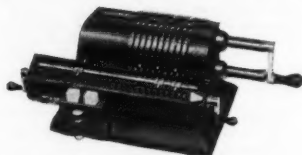
NAGLE PUMPS, INC.

1247 CENTER AVENUE, CHICAGO HEIGHTS, ILLINOIS



PUMPS FOR ABRASIVE AND CORROSIVE APPLICATIONS
When inquiring check CP 2173 on handy form, pgs. 2-3

"THE MACHINE TO COUNT ON"



Your personal laboratory calculator

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"THE MACHINE TO COUNT ON"

- ✓ SAVES time
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Best for wide range of needs; short-cuts, simultaneous multiplications, divisions, reciprocals, complements, etc. More convenient than large, expensive electrical machines.

For quick calculating in the laboratory this compact, light-weight portable calculator is unsurpassed. Performs all needed calculating operations, from the simplest to the most complicated, with remarkable time-saving ease. Weighs only 12 pounds—the utmost in precision design and construction—rapidly becomes your all-round inseparable lab companion. Priced low.

Send for Bulletin CH-43

Ivan Sorvall, inc.

210 FIFTH AVENUE, NEW YORK 10, N. Y.

When inquiring check CP 2174 on handy form, pgs. 2-3

NEW LITERATURE

Shows full details of gas burners

Advantages cited for the premix-type combustion equipment described in 27-page bulletin are: burners require no secondary air; flames are not affected by furnace drafts, air currents, etc.; air to gas ratio for whole system is easily adjusted by one control if type of gas is changed; and extremely high turndown ratios from maximum to minimum heat release obtainable.

Complete details are given on seven types of burners, lighters and lighter tips, soldering irons, hand torches, fire pots, peep hole covers, stop cocks and fire checks. Bul B-11 is issued by The C. M. Kemp Manufacturing Co., Dept. CP, 405 E. Oliver St., Baltimore 2, Md. When inquiring specify CP 2175 on handy form, pages 2 and 3.

Reviews DDT and other insecticides

First part of volume describes physical and chemical properties, manufacture, and use of DDT. All available information and research data are included in 670-page book. Describes in detail the preparation of aqueous solutions and suspensions, and compatibility of DDT with other insecticides. Tabulated data reviews solubility of DDT in various solvents, comparative toxicity, analogues of DDT, etc.

Second part of volume describes other chlorinated hydrocarbons whose insecticidal properties have been discovered recently. A comparison of these new insecticides with DDT is presented. Comprehensive reference list supplements each chapter. To obtain "DDT and Newer Persistent Insecticides," remit \$8.50 direct to Chemical Publishing Co., Dept. CP, 212 Fifth Ave., New York 10, N. Y. When inquiring specify CP 2176 on handy form, pages 2 and 3.

Broadsides tell story of fork lift trucks

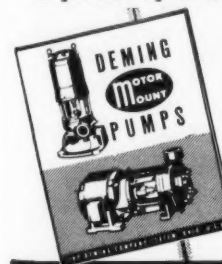
Three separate broadsides offer data and specifications on fork lift trucks. Broadsides number 1 describes and illustrates construction features such as distribution of weight, structural strength, welding employed in assembling all-steel frame, body design and location of controls.

Broadside number 2 is slanted to review maintenance and durability of fork lift trucks. Descriptive material presents an X-ray inspection of clutch, transmission, braking system, steering mechanism, and similar in-



DEMING CENTRIFUGAL MOTOR-MOUNT PUMPS

Design of these units permits mounting pumps on any motor which has NEMA Type "C" mounting flange. Two types "Vertical" and "Horizontal." Enclosed type impellers. Stainless steel pump shafts. Capacities up to 200 g.p.m. Heads up to 165 feet.



Send for Bulletin No. 4350

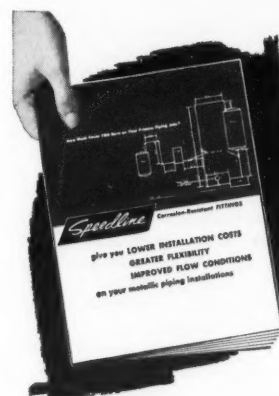
Three-color bulletin shows construction features and performance range of each of 25 sizes. Graphic charts simplify selection of specific units. Write for Bulletin No. 4350.

THE DEMING COMPANY
522 BROADWAY
SALEM, OHIO

When inquiring check CP 2177 on handy form, pgs. 2-3

NEW Corrosion-Resistant

Speedline fittings



LOWER PIPING COSTS result when you use *Speedline* fittings, because you can use lightweight Schedule 5 pipe. Increased ID of Schedule 5 pipe gives lines increased capacity.

RAPID INSTALLATION is possible because the *Speedline* method often eliminates the need for welding or flaring.

Write for your copy of this 20-page *Speedline* catalog. It gives you the entire story.

HORACE T. POTTS CO. Since 1815

Erie Avenue & D Street, Philadelphia 34, Pa.
Baltimore Branch Warehouse, 2835 Sisson Street

When inquiring check CP 2178 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

formation. Third broadside offers mechanic's-eye view of power plant, lubricating and cooling systems, carburetor, and other engine units.

Broadside No. 1, 2, and 3 are issued by Towmotor Corporation, Dept. CP, 1226 E. 152nd St., Cleveland 10, Ohio. When inquiring specify CP 2179 on handy form, pages 2 and 3.

Tells why, when, how of lighting care

Twelve-page, two-color bulletin emphasizes importance of planned maintenance and outlines an 8-step program for regular care of fluorescent lighting.

Particularly stressed are advantages of planned group replacement of fluorescent lamps as compared as to individual replacements.

Considerable savings of time and useful light through planned maintenance of light sources and reflecting surfaces are also emphasized.

"The Why, When and How of Modern Lighting Maintenance" is issued by the Lighting Division of Sylvania Electric Products, Inc., Dept. CP, 60 Boston St., Salem, Mass. When inquiring specify CP 2180 on handy form, pages 2 and 3.

Discusses asbestos-aluminum for roof protection

Two-page catalog sheet describes manufacturer's asbestos-aluminum roof coating, application of which is reported to prolong roof life and reduce inside temperatures as much as 20°.

Other features of the product reported in the catalog are: 1) reduces maintenance costs for roofs, 2) increases efficiency of air conditioning systems, especially when used on roofs of low, one-story buildings, 3) increases worker efficiency because of the reduced temperatures, 4) withstands extremes of heat and cold, 5) will not crack or wrinkle, 6) is highly resistant to chemical vapors, industrial gases and fumes, 7) is easily applied either by spray or brush and adheres firmly to the surface.

Aluma-Seal sheet is issued by the Paramount Industrial Products Co., Dept. CP, University Center Station, Cleveland 6, Ohio. When inquiring specify CP 2181 on handy form, pages 2 and 3.

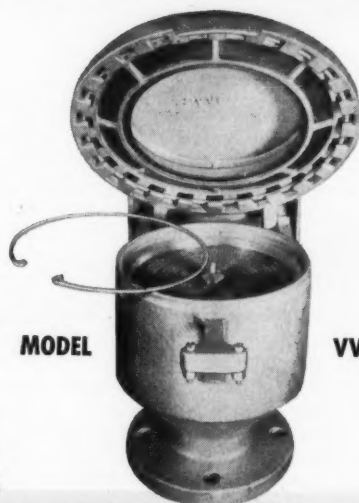
For more information on product at right, specify CP 2182 see information request blank between pages 2-3.

Positive Pressure Relief!

Efficient Fire Protection!

Lower Maintenance Costs!

with the **BS&B** COMBINATION VENT VALVE FLAME ARRESTER



MODEL

VVFA

BS&B Vent Valve—Model VVH

Contains all features of Model VVFA with exception of arrester bank. Can be used as a secondary relief valve with higher setting. Also as primary relief valve on non-flammable materials. The larger sizes of Model VVH can be used as a manway, thus saving an additional tank opening. Material specifications are the same as Model VVFA.

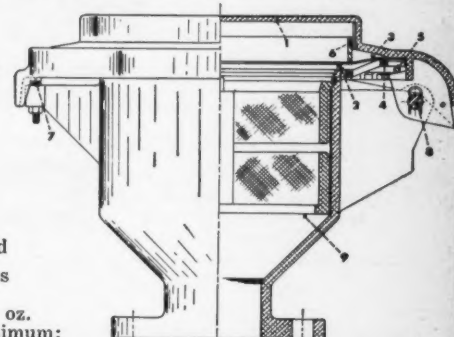


The BS&B Model VVFA is a compact valve assembly that gives you many advantages. Its patented cantilever type arrangement of a synthetic rubber gasket eliminates metal-to-metal seating and provides a tight seal that increases in tightness until the pressure rises to the dead weight setting of the bonnet, thus assuring continued positive reseating. This gives you high vapor conservation and greater economy in operation. The arrester bank is housed in the valve body. Snuffing action is automatic. The arrester bank can be removed for cleaning or replacement without taking the valve out of service since the valve bonnet does not have to be removed. The cantilever type gasket can also be easily removed from the bonnet.

MATERIAL SPECIFICATIONS

Bonnet: cast aluminum
Body: cast iron
Retaining ring: cast aluminum
Vacuum ring: steel
Plug: synthetic rubber
Arrester bank: rolled corrugated aluminum
Flange: 125# A.S.A. standard
Sizes: 2, 3, 4 and 6-inch sizes available
Vacuum Setting: 0.5 oz. to 2 oz.
Pressure Setting: 0.5 oz. minimum; 16 oz. maximum all sizes

Note: Available in other materials of construction on special order.



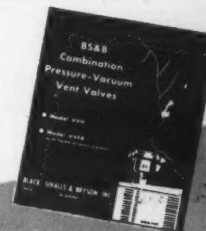
OPERATION DATA — MODEL VVFA Valve seat (2) is sealed by rubber gasket (3), vacuum ring (6) and internal pressure. As internal pressure approaches valve setting, patented cantilever type plug is disengaged from valve seat and bonnet (1) rises. Under vacuum conditions, atmospheric pressure is imposed to underneath side of plug. This permits "inbreathing" when pressure approaches 0.5 oz. setting of vacuum ring. A web-type support (4) holds plug in place. The valve also includes retaining ring spring (5), bumper spring (7), hinge (8) and arrester bank (9).

Ask Your Tank Manufacturer for BS&B Vent Valves on Your Equipment! To get greater economy of operation, ask to have the BS&B Combination Vent Valve-Flame Arrester installed on your equipment. Our engineers will work with your fabricators to meet your particular requirements.

ENGINEERING STUDY OF YOUR REQUIREMENTS

You are not obligated in any way when a BS&B engineer makes an analysis of your properties. Perhaps his recommendations will show you how to get more efficient, economical, safe operation.

NOW AVAILABLE Bulletin No. 601, which gives complete information on this equipment. Write for your copy today.



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NEW Sier-Bath

External Gear & Bearing Bracket Type

SCREW PUMP

FOR non-lubricating fluids, semi-fluids. Capacities: 1-700 GPM; Discharge: 1000 PSI for viscous liquids, 500 PSI for water.

**The Only Pump
with All These
Advanced Features!**

BALL BEARINGS
for less wear on bearings and timing gears. Double-row angular contact ball bearings position rotors axially.

RUGGED BRACKETS
won't twist rotors out of alignment.

ROLLER BEARINGS
where they're needed—at point of high radial load.

RIGID BEARINGS
outboard of timing gears—prevent shaft "whip."

INTERCHANGEABLE ROTOR SCREWS
make major overhauls simple, inexpensive—greatly reduce need (and expense) of periodic pump replacement.

SINGLE-POINT ALIGNMENT
speeds servicing—eliminates rotor distortion during installation, or when handling hot material.

GEAR HOUSING
center line supported—doweled for accurate alignment. Fastor assembly—all parts automatically positioned by shoulders, locknuts.

For Further Information, See Your Local Sier-Bath Representative, Or Write To...

Also Makers of Sier-Bath Gearbox Pumps, Precision Gears and Flexible Gear Couplings

Sier-Bath GEAR and PUMP CO., Inc.

9260 HUDSON BLVD., NORTH BERGEN, N. J.

When inquiring check CP 2183 on handy form, pgs. 2-3

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BOTHERED BY
ENTRAINMENT?

Look into METEX MIST ELIMINATORS

...and see how they will help
boost production and cut costs

Removal of liquids entrained in gases is simple... economical... effective—when you use Metex Mist Eliminators! As the mixture passes through the Mist Eliminator, the entrained liquid is wiped out and retained by the extensive KNITTED wire area—until it coalesces into drops that are large

enough to fall back through the rising flow. The gas passes on—freed from entrainment.

Efficiencies 95% or better • Little if any pressure drop • Can be installed in existing equipment • Made of practically any metal • No moving parts

Worth looking into, isn't it? Ask for your free copy of "Metex Mist Eliminators", an 8-page brochure that's packed with facts. Or write us about your specific entrainment problem.

METAL TEXTILE CORPORATION

KNITTERS OF WIRE MESH FOR MORE THAN A QUARTER CENTURY

659 East First Avenue Roselle, N. J.

When inquiring check CP 2184 on handy form, pgs. 2-3

NEW LITERATURE

Diagram and specs on flanges

Two-color bulletin diagrams drop-forged steel flanges and welding neck flanges. Sectional views of seven models ranging from 150 to 2500 psig are presented. Service pressure ratings for flanges and fittings up to 1000°F appear in tabular form. Tables of drilling templates and facing dimensions are included in the 32-page catalog.

Specs regarding Van Stone, slip-on, threaded, and blind flanges are also presented. Bul ASCF 1-51 is issued by Harrisburg Steel Corporation, Dept. CP, Harrisburg 24, Pa. When inquiring specify CP 2185 on handy form, pages 2 and 3.

Outlines crushers for lump material

Sixteen-page bulletin offers sectional and picture review of crushing equipment. Machinery is designed for reducing coal, coke, metal turnings and similar substances. Ring-type crushers, both single- and double-rotor models, are described in addition to single- and double-roll units.

Featured machine is double-rotor crusher for damp coal and similar sticky materials. Handles lumps between 14" and 30" without danger of plugging or decrease in capacity. Dimensions and specifications for installation are tabulated. Bul 12-C is issued by Stephens-Adamson Mfg. Co., Dept. CP, 274 Ridgeway Ave., Aurora, Ill. When inquiring specify CP 2186 on handy form, pages 2 & 3.

Illustrates, describes flexible manometer

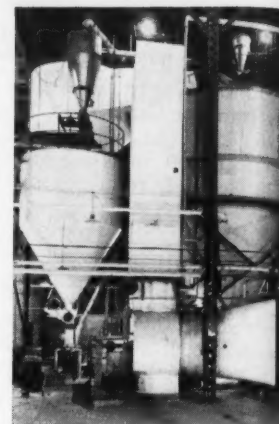
Flexible vinyl-plastic manometer that can be conveniently rolled up and carried for field work is described in two-page bulletin. Designed to meet all requirements for light pressure and vacuum indicators, the slack tube manometers are useful in determining velocity and static pressures, for leakage, fan and blower tests, and resistance through filters. They are available in nine sizes ranging from 4-0-4" to 36-0-36". Special scales are available if production quantities are ordered. Bulletin also describes manufacturer's flowmeters of solid acrylic construction. Standard units include a built-in control valve, and special scale ranges are also available. Made for front-of-board mounting, a flush panel mounting type is also available when specified. Mounting holes are fur-

SPRAY DRY HEAVY CHEMICALS

at Low Cost

This high-capacity equipment is especially suitable for handling heavy chemicals. It is direct fired with oil or gas, and gives amazingly low-cost operation.

Typical uses: silica gel, kaolin clay, manganese sulfate, calcium carbonate, chrome sulfate, sodium phosphates.



Swenson Spray Dryers successfully handle a wide variety of organic and inorganic chemicals.

Send for Bulletin D-105

SWENSON EVAPORATOR CO.

Division of Whiting Corporation

15667 Lathrop Ave.

Harvey, Illinois

When inquiring check CP 2187 on handy form, pgs. 2-3



Doing Vacuum Impregnation?

The current issue of "Much Ado About Nothing" features the techniques of vacuum impregnation of electrical structures, metal castings and other applications of this principle.

We'll be glad to send a copy and put your name on the list for future issues. Past issues in which you may be interested are Vol. 1, No. 2, on central station vacuum systems, and Vol. 2, No. 1, on chamber evacuation for instrument testing and high altitude testing.

BEACH-RUSS COMPANY

46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring check CP 2188 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

nished to specifications; $\frac{1}{8}$ SPT connections are provided.

Bul 172 is issued by F. W. Dwyer Mfg. Co., Dept. CP, 317 S. Western Ave., Chicago 12, Ill. When inquiring specify CP 2189 on handy form, pages 2 and 3.

Bulletin gives data on combustion controls

Automatic combustion control for oil and gas fired boilers is described in detailed account in 24-page, illustrated, tri-colored bulletin.

Illustrations and descriptions include lucid diagrammatics showing nine typical firing methods and 16 major control equipment components. Installations cited in bulletin range from 6000 to one million lb/hr capacity.

Bul 1023 is issued by the Bailey Meter Co., Dept. CP, 1050 Ivanhoe Rd., Cleveland 10, Ohio. When inquiring specify CP 2190 on handy form, pages 2 and 3.

Cloth-bag collects industrial dusts

Eight-page bulletin describes and illustrates dust collector with cutaway and sectional diagrams. Cloth-bags are arranged in rack to permit individual inspection and maintenance. Shaker motor forces waste into metal hopper, which may be equipped with either standard or rotary valve. Cloth-bag design and path of air current through collector is pictured.

A table of specifications and four methods of unit waste disposal are included in bulletin. Bul 914 is issued by Pangborn Corporation, Dept. CP, Hagerstown, Md. When inquiring specify CP 2191 on handy form, pages 2 and 3.

Discusses grinding media's merits

Bulletin, "The Tubular Grinding Medium," 4-pages, gives physical properties of manufacturer's grinding media along with comparative data on other media. Results of numerous field tests are also given.

Bul B20 is issued by U.S. Stoneware, Dept. CP, Akron 9, Ohio. When inquiring specify CP 2192 on handy form, pages 2 and 3.

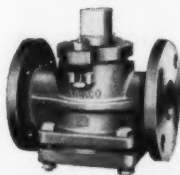
For more information on product advertised at right, specify CP 2193 . . . see information request blank between pages 2-3. ➔

Research keeps **DURCO** first with the best in corrosion resisting equipment

DURCO design developments and research in materials of construction make possible new ways to handle corrosives. Constant progress in manufacturing techniques makes these new developments of practical use to you.

A good example is the DURCO Type F Valve shown on this page. The use of the Teflon sleeve—and the design which permits its use—gives you a sturdy valve built for tough chemical service.

Other DURCO products help to prove this point. We'll send a catalog on request. But the important thing to remember is this: DURCO standard products may easily solve your specialized corrosion problems. Let our sales engineers show you how.



The Durco Type F Valve

THE DURIRON COMPANY, INC.

Dayton 1, Ohio



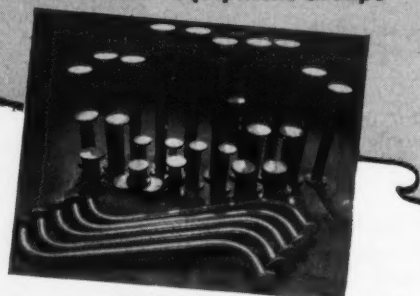
Pipe Cost — \$1,360 Plus Installation Savings — Every Year — \$8,000 In Similar Equipment Groups

Some of the Ways we are helping others

Made furnisher rolls for printing textiles, developed non-toxic white rubber linings for food processing equipment, constructed special rolls for the new non-contact printing process, devised static absorbing rolls, and provided many other specials for troubled production executives

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Details a case history on rubber lined pipe that applies to corrosion protection in any field. You will find it a thought-provoking text that may reveal ways you can use the services of our RUBBER ENGINEERS.



Amazing, yes—and 3½ years use has demonstrated that this saving is no temporary affair.

Many case histories have proven the merit of the La Favorite method of lining and/or covering pipe, valves, tanks and special equipment with exclusive La Favorite rubber compounds.

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1819

RUBBER LININGS

RUBBER COVERING

RUBBER ENGINEERING

When inquiring check CP 2194 on handy form, pgs. 2-3

M & L "Standardized Flexibility" Saves You DOLLARS and DRUDGERY!

Thousands of HEAT EXCHANGE Equipment installations have proven the wisdom of M & L "Standardized Flexibility"—providing custom-built equipment from standard basic elements—saving dollars in cost and drudgery for design engineers.

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Single pass or multi-pass: straight, U-tube, or bent tube; baffled or non-baffled; fixed tube sheets or floating head—for any type of service. Our plant is equipped to handle this work quickly and economically.

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Manning & Lewis Engineering Co.

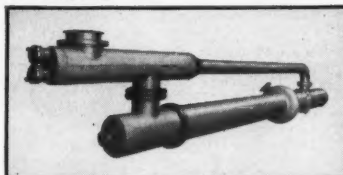
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Newark 4, New Jersey

SALES REPRESENTATIVES IN PRINCIPAL CITIES



M & L REBOILER — An example of special M & L heat exchange equipment.



When inquiring check CP 2195 on handy form, pgs. 2-3

NEW LITERATURE

Reveal varied uses for lift trucks

Adaptability of fork lift trucks to jobs in fruit orchards, foundries, box manufacturing, and other materials handling problems in various industries are currently featured in quarterly publication entitled "Handling Materials Illustrated."

One article tells how fork lift trucks helped materially to boost foundry production of malleable fittings as much as 300% on one job. Another tells the story of reduction of handling costs for a manufacturer of corrugated boxes.

Further demonstrations of the equipment's usefulness in other industries are also given in the publication.

Vol 10, No. 1 of the publication is issued by Towmotor Corporation, Dept. CP, 1226 E. 152nd St., Cleveland 10, Ohio. When inquiring specify CP 2196 on handy form, pages 2 and 3.

Methods and means of record retention

Planned disposition of company records is outlined in 24-page handbook. Reviews method of initiating record retention and destruction plan. Case history illustrates procedure followed when establishing plan in utility corporation. Coding and limited uses of microfilm recording are described in three-color booklet.

Various types of records and time of their retention are summarized in table. Actual reproductions of various forms used in record retention plan are presented. Cat X1200 is issued by Remington Rand Inc., Dept. CP, 315 Fourth Ave., New York 10, N. Y. When inquiring specify CP 2197 on handy form, pages 2 and 3.

Surveys procedure in cleaning metals

Bulletin defines six methods of metal-cleaning and tabulates proper cleaning agents for aluminum, copper, magnesium, iron, and certain alloys. Seven types of soak cleaners are listed and reviewed according to applications, recommended concentrations, and temperature range. Fifteen classes of electrocleaners are described in same form, plus data regarding current density.

Bulletin is designed to satisfy metal-cleaning requirements prior to electroplating, anodizing, painting, or applying other protective coatings. Concluding sections of bulletin deal with spray washing-machine cleaners and specific purpose cleaners. Bul C-107 is issued by Hanson-Van Winkle-Munning Co., Dept. CP, Matawan, N. J. When inquiring specify CP 2198 on handy form, pages 2 and 3.

Two translated volumes hold basic electrochem theory

Two-volume translation of "Lehrbuch der Elektrochemie" not only makes a recent (1949) edition of the standard German text available, but adds considerable material to this work. Stress is upon fundamentals and theory with very little of the book devoted to industrial or other applications.

Probably this work will be most useful to physical chemists and those engaged in research where electrochemical methods look promising. It is a comprehensive summary of

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Ask for No. 620EG
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AND OTHER FLUOROCARBON PLASTICS

When inquiring check 2199
on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

modern electrochemistry. Errors and obscurities of the original German text have been cleared up and bibliographies of English language sources have been added.

In the first 353-page volume, chapters on chemical thermodynamics and electromotive force have been more than half rewritten. While scope of this volume is basic, chapters treat subjects like: applications of conductance measurements, practical applications of potentiometric measurements, and equilibria in solutions of weak electrolytes.

Second volume (529 pages) has rewritten chapters on electric phenomena at interfaces and irreversible electrode processes. In addition to this, two new chapters cover experimental methods of electrochemistry and data on physico-chemical properties. Data chapter is extensive, covering 161 pages. About 100 problems (with solutions) have been included. A total of 127 illustrations are used. "Textbook of Electrochemistry" can be obtained by remitting \$7.00 for Vol I and \$10.00 for Vol II direct to The Elsevier Press, Dept. CP, 402 Lovett Blvd., Houston, Texas. When inquiring specify CP 2200 on handy form, pages 2 and 3.

Several types of plate and frame presses

Specifications and illustrations amplify descriptive material in this 18-page catalog devoted to filters and filter pads. In addition to a small industrial unit whose frame size is 10" sq, there are two other general use filters shown with 13½" and 18" sq frames.

For laboratory work are three pressure and vacuum filters of 0.1, 2.8 and 4.01 capacity. In section on filter sheets, a chart illustrates average flow rates of water through various grades of manufacturer's products. Cat H-5 is issued by F. R. Hormann & Co., Inc., Dept. CP, 17 Stone St., Newark 4, N. J. When inquiring specify CP 2201 on handy form, pages 2 and 3.

Gives job applications of bronze electrodes

Well-illustrated, 8-page booklet describes welding techniques and correct choice of bronze electrodes to be used in welding water heaters, turbine runners, cast-iron gear housings, galvanized iron exhaust stacks, bearings, dies, etc.

Non-ferrous electrode specifications and properties are given for aluminum, copper and copper alloys, corrosion-resisting chromium and chromium nickel.

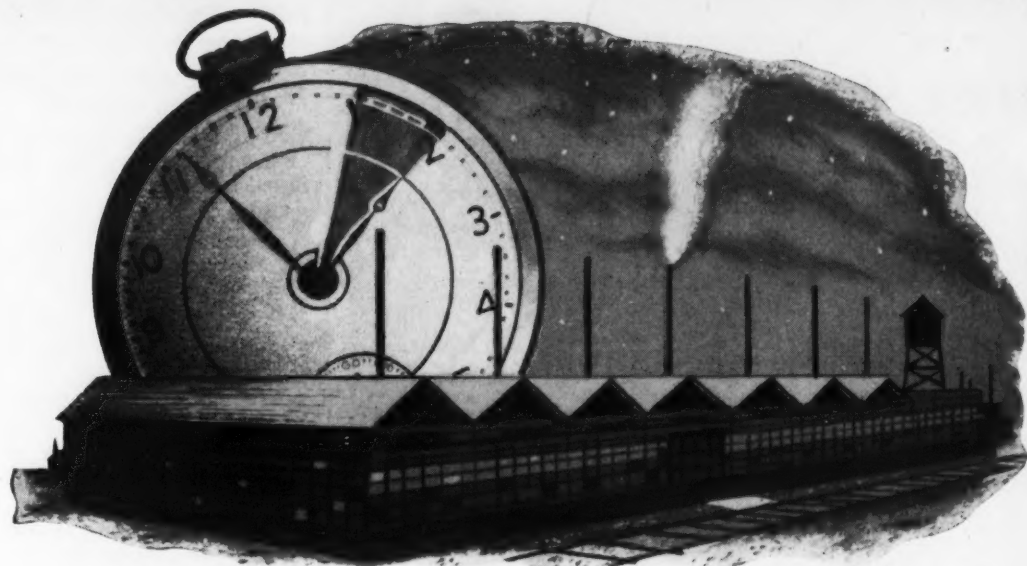
"Jobs You Can Do With Bronze Electrodes" is issued by Ampco Metal, Inc., Dept. CP, 1745 S. 38th St., Milwaukee 46, Wis. When inquiring specify CP 2202 on handy form, pages 2 and 3.

Supplies adjustable DC voltage from AC source

Four-page bulletin illustrates instrument control providing stabilized and regulated DC output voltage from AC power lines. Step by step description accompanies wiring diagrams of low DC voltage unit. Adjustable DC voltage is delivered without being affected by AC line voltage fluctuations or load changes. Two-color bulletin pictures control panel and overall dimensions. Input range is 95 to 135v AC for output range from 0 to 30v DC.

Bul V1051 is issued by The Superior Electric Co., Dept. CP 386 Laurel St., Bristol, Conn. When inquiring specify CP 2203 on handy form, pages 2 and 3.

APRIL, 1952



How to reduce DOWNTIME with STEAM TRAPS

What do you expect from your steam traps? To drain condensation . . . to vent air, and to prevent the escape of live steam?

Any good trap can do this job. But what about that other important factor, keeping those vital steam lines operating continuously?

The careful design and exclusive construction of Super-Silvertops prevents costly downtime in two ways.

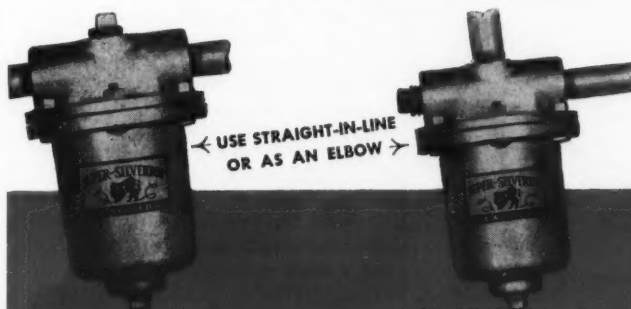
First, rugged and strong . . . they eliminate downtime caused by the continual replace-

ment of parts in steam traps. Super-Silvertop valves and seats are made of longer lasting Anderloy* alloys . . . and the bucket is guided on a patented center tube that eliminates bucket damage.

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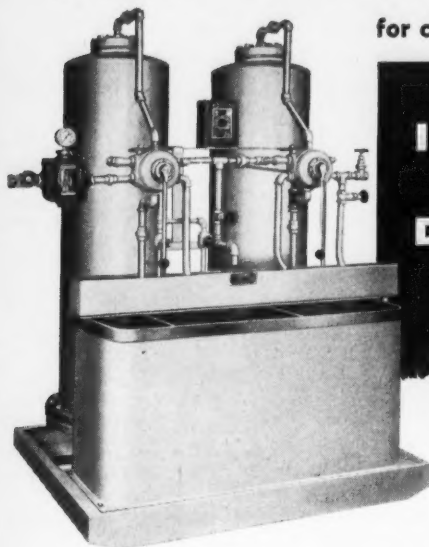
City State

In Canada: Bawden Machine Co., Toronto

When inquiring check CP 2204 on handy form, pgs. 2-3

PURE WATER *at Low Cost*

for chemical processes

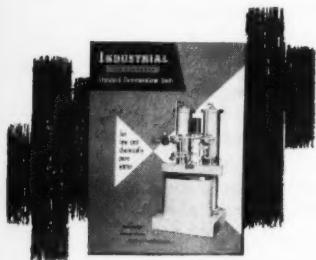


INDUSTRIAL ION-EXCHANGE Demineralizers

A two-bed INDUSTRIAL demineralizer unit. Standard units are available with capacities of 200 to 1000 gph. Special units of any capacity are engineered to requirements.

Since chemically pure water costs so little with an INDUSTRIAL demineralizer, there is no reason for not having the benefits of demineralized water. It simplifies product-quality control in so many processing operations.

The equipment required is very simple—no heat, steam, or cooling water is used. Units can be made to deliver almost any quantity of purified water. The operation is practically automatic—requiring only limited attention periodically.



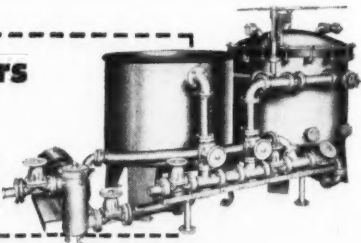
Ask for Bulletin 200

This bulletin gives the details on INDUSTRIAL demineralizers with specifications and performance data on the standard models. If you want information on a particular problem, send us a water analysis, degree of purity required, amount in gallons per hour, and whether the flow is to be continuous.

INDUSTRIAL Filters

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Any Solution—Any Quantity

A typical INDUSTRIAL stationary filter. Standard portable and stationary models are available with capacities 100 to 15,000 gph. Special filtering systems are engineered to meet unusual requirements.



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Pressure Type Centrifugal Salt Fog • Humidity

RUBBER DIVISION WATER
Vulcanized Linings • Molded Products DEMINERALIZERS

When inquiring check CP 2205 on handy form, pgs. 2-3

NEW LITERATURE

Electric eye detects changes in combustion chambers

Two-page bulletin describes combustion indicator and offers diagrammatic view of relay circuits as well as installation.

Specifications and dimensions of indicator are reviewed. Any change in air, fuel, or functioning of controls is quickly detected. Phototube withstands temperatures up to 210°F. Photo-electric units have dual function as smoke indicators and in maintaining peak combustion.

Combustion indicators find application in boilers, furnaces, and other processing control installations.

Bul 801 is issued by Ess Instrument Co., Dept. CP, 98 S. Washington Ave., Bergenfield, N. J. When inquiring specify CP 2206 on handy form, pages 2 and 3.

Previews corrosion-resistant valves and lubricants

Sectional and dimensional drawings review corrosion-resistant valves in 35-page bulletin. Descriptive material covers type, size, operation, and varied application in chemical and processing industries. Catalog contains over 100 illustrations of valves in addition to typical analyses of alloys such as semi-steel, Ni-Resist, bronze, Mercoloy, etc. Tables list approximately 175 different chemicals with recommended alloy valves and lubricants.

Lubricant equipment is discussed as well as industrial, rotocycle, and water meters.

Bul V-217 is issued by Rockwell Manufacturing Company, Dept. CP, 400 N. Lexington Ave., Pittsburgh 8, Pa. When inquiring specify CP 2207 on handy form, pages 2 and 3.

Precision instruments for plant, processing, and laboratory

Potentiometers and bridge instruments are discussed and illustrated in 36-page bulletin. Single and multiple recording units are reviewed in addition to pneumatic and electrically-operated control models. Photos and wiring diagrams show principles of operation. Intended for plant, processing, and laboratory use, the bulletin pictures several specific applications.

Other electronic instruments are described in relation to their value in determining pH, current, strain, smoke density, thickness, and other variables capable of being measured in terms of DC current and voltage, resistance, or capacitance. Bul P1245 is issued by The Bristol Company, Department CP, Waterbury 20, Connecticut. When inquiring specify CP 2208 on handy form, pages 2 and 3.

Guides quick selection of V-belt drives

Engineering guide offers quick selection of multiple V-belt drives. Tables of drives in all belt sections have been compiled for fast selection of required ratio and speed. Bulletin offers simple formulas for standard quarter-turn and V-flat drives.

Guide 50-A is issued by Fort Worth Steel & Machinery Company, Dept. CP, P.O. Box 1038, Fort Worth, Texas. When inquiring specify CP 2209 on handy form, pages 2 and 3.

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Know how



at your fingertips

It is a known fact that TEFLON is the ideal packing material for the chemical industry. It is also a fact that to get the best usage TEFLON packings and gaskets should be processed by experts. Chemical and Power Products was the first company to manufacture TEFLON packing gaskets and specialized parts for the chemical field. Because through all of the elapsed time we have worked and experimented, only with TEFLON, we can place at your fingertips a fund of specialized knowledge which is bound to save you money and time through the years. Send for your copy of "TEFLON Packing and Gaskets for the Process Industries."



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on handy form, pgs. 2-3

CHEMICAL PROCESSING AP

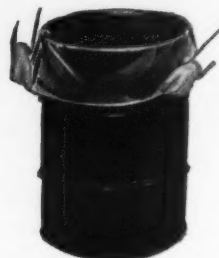
Polyethylene Plastic

DRUM LINERS

by

MEHL

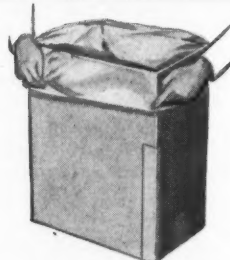
Spectacular economies are effected through these new methods of shipping bulk chemicals. Minimum waste . . . eliminate re-cleaning cost . . . provide top protection for your valuable products.



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BOX LINER

Write, wire or phone us concerning your particular problems.

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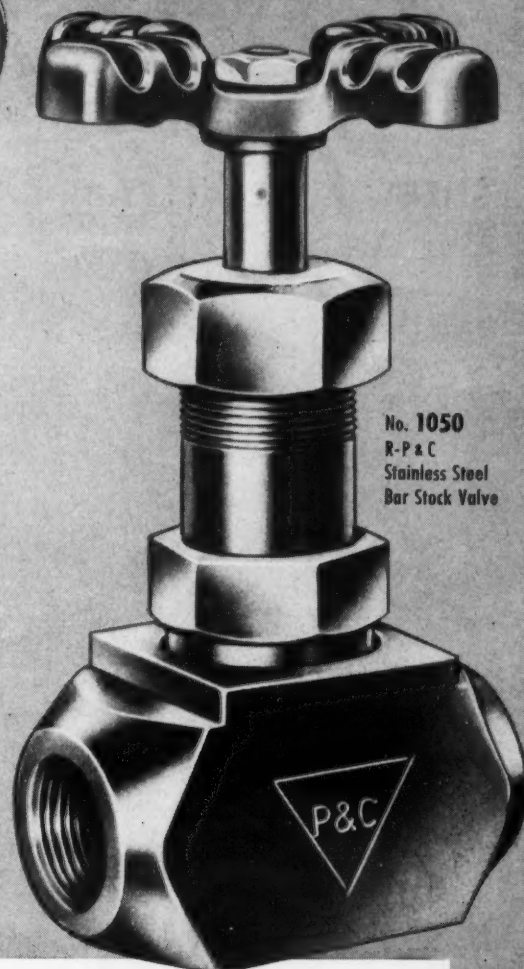
Convention & Exhibit Schedule 1952

- April 22.* Association of Consulting Chemists and Chemical Engineers, General Symposium, Belmont Plaza Hotel, New York, N.Y.
- April 28-30.* American Oil Chemists Society, Spring Meeting, Shamrock Hotel, Houston, Tex.
- May 4-8.* Electrochemical Society, Spring Meeting, Benjamin Franklin Hotel, Philadelphia, Pa.
- May 5-6.* National Air Pollution Symposium, Huntington Hotel, Pasadena, Calif.
- May 11-14.* American Institute of Chemical Engineers, French Lick Springs Hotel, French Lick, Ind.
- June 8-10.* Chemical Specialties Manufacturers Association, Midyear Meeting, Copley-Plaza Hotel, Boston, Mass.
- June 16-18.* National Fertilizer Association, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.
- June 23-25.* Manufacturing Chemists Association, Greenbrier Hotel, White Sulphur Springs, W. Va.
- June 23-25.* Synthetic Organic Chemical Manufacturers Association, Greenbrier Hotel, White Sulphur Springs, W. Va.
- Sept. 8-12.* Instrument Society of America, National Instrument Conference and Exhibit, Cleveland, Ohio.
- Sept. 9-13.* American Chemical Society, Chicago Section, Seventh National Chemical Exposition, Chicago Coliseum, Chicago, Ill.
- Sept. 11-13.* American Institute of Chemical Engineers, Palmer House, Chicago, Ill.
- Oct. 14-16.* The Society of Industrial Packaging and Materials Handling Engineers, 7th Annual Exposition, Chicago Coliseum, Chicago, Ill.
- Nov. 17-19.* National Paint, Varnish and Lacquer Association, Annual Convention, Palmer House, Chicago, Illinois.
- Nov. 20-22.* Federation of Paint and Varnish Production Clubs, Annual Meeting, Palmer House, Chicago, Ill.
- Dec. 7-10.* American Institute of Chemical Engineers, Annual Meeting, Hotel Cleveland (headquarters) and Carter Hotel, Cleveland, O.

Polaroid screen supplants Nicol prism

Design alterations in polarizing microscopes are reviewed in 32-page catalog. Five models are pictured and their components described. All instruments incorporate polarizing screens to replace Nicol prisms, which increases facility of microscope and eliminates optical units previously used to clear astigmatism. Microscopes feature trip-in Bertrand lens and substage construction which permits full field illumination at all powers without complicated condenser fittings.

Units are readily adaptable for examination of opaque objects under polarized light. Catalog concludes with brief description of accessories such as analyzers, objectives, polarizing units, eyepieces, etc. Cat CM 7000B is issued by R. Y. Ferner Co. Inc., Dept. CP, 110 Pleasant St., Boston 48, Mass. When inquiring specify CP 2212 on handy form, pages 2 and 3.



No. 1050
R-P&C
Stainless Steel
Bar Stock Valve

RUGGED...

● That's the best way to describe R-P&C Bar Stock Valves. These fine throttling valves provide precise, positive flow control. Long, low-cost, trouble-free service makes them ideal for meter, gauge, test, and general purpose use. Precision turned . . . from carefully tested metals . . . and suitable for a wide range of pressures and temperatures.

See your R-P&C distributor or write the nearest R-P&C district office for information.

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AMERICAN CHAIN & CABLE

Reading, Pa., Atlanta, Baltimore, Boston, Chicago, Denver,
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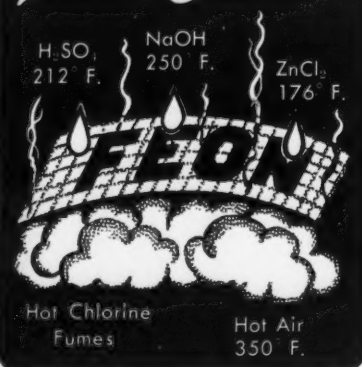
**R-P&C
valves**

When inquiring check CP 2213 on handy form, pgs. 2-3

A black and white photograph of a dark, rectangular metal box, likely a component of a mechanical system. The box has a hinged lid on top and a front panel with several horizontal ventilation slats. The box is shown from a three-quarter perspective, highlighting its sturdy construction.

Page 222

When the **HEAT**
is on your
Filter Cloth...



The same FEON synthetic fabrics that are chosen for chemical resistance, high strength, and general over-all economy at normal temperatures can also handle the hot jobs—up to three or four hundred degrees fahrenheit, in many cases.

Hot or cold, cost savings are amazing. FEON nylon, ORLON, VINYON-N, and dynel fabrics last up to thirty times as long as ordinary materials, often save thousands of dollars annually.

FEON synthetic filter fabrics are available as yard goods, or tailored to fit any filter. Send us the facts on your job today. We'll be glad to make recommendations and quote prices.

31-D

**GET
STARTED
NOW!**

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ORLON
VINYON-N
DYNEL

Send for new
FEON Selector Chart
containing samples,
technical data and
case histories.



FILTRATION FABRICS DIVISION
FILTRATION ENGINEERS, Inc.
155 Oraton Street • Newark 4, N. J.

When inquiring check CP 2216
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REEVES

Vari-Speed Motor Pulley

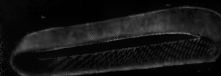
Converts any standard,
constant-speed motor to a
Variable-Speed Drive



REEVES Motor Base provides sliding platform for motor. Handwheel or push-button control increases machine speed by moving motor toward driven machine; decreases speed by reverse movement.

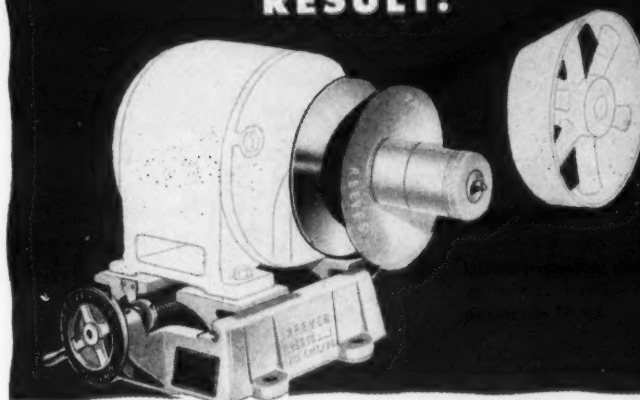


Disc assembly mounts directly on motor shaft. This simple assembly consists of two cone-shaped discs and belt-tensioning spring.



V-belt connects disc assembly with driven machine.

RESULT:



● REEVES Vari-Speed Motor Pulley is the easiest, lowest-cost method of giving a constant-speed machine stepless speed adjustability. Eliminates all complicated electrical hook-ups, chain drives, gears, etc. . . widens machine work range, increases rate of production and reduces production cost by providing the right speed for each operation under every changing condition—without stopping the machine. Send for complete information to Dept. CP6.

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Recognized leader in the specialized field of variable speed control
STEPLESS! ACCURATE! POSITIVE!

REEVES Variable Speed Drives

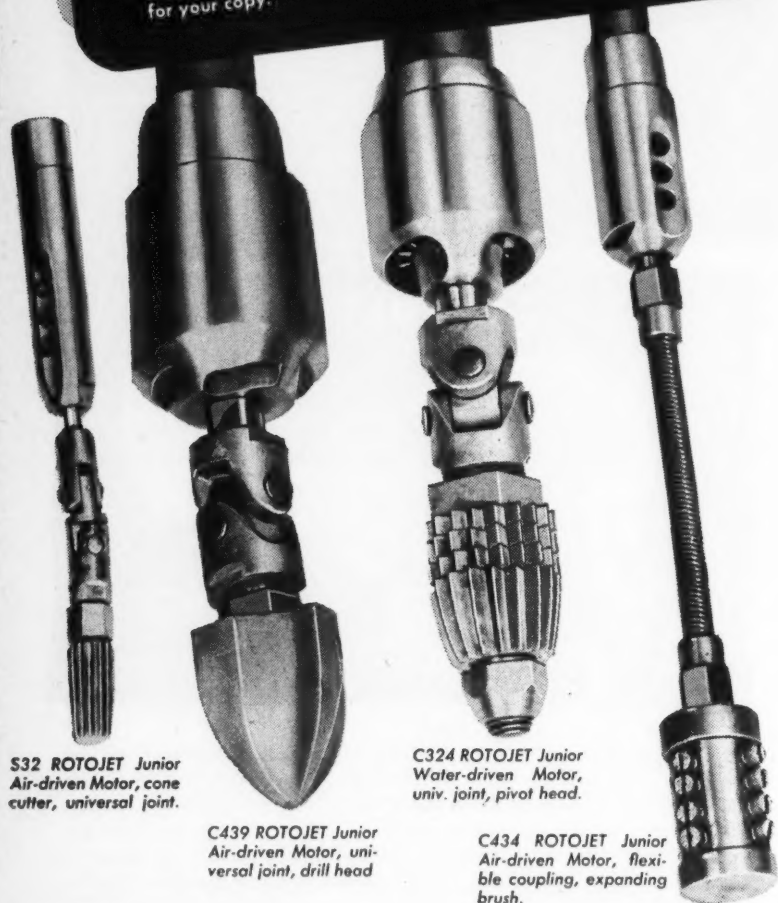
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ROTOJET[®] Junior TUBE CLEANERS

Powerful, Light-weight
for SMALL TUBES

Rotojet Junior Tube Cleaners are powerful, yet light in weight. They are fed easily through the tubes with the operating hose, and can be shifted quickly from tube to tube. Simple design and precision construction assure long service, efficient use of power, and freedom from trouble. Clean tubes from .495" to 2.062" I.D.

Bulletin J-410 shows Rotojet Junior motors and accessories to help you do a faster, more thorough tube cleaning job. Send for your copy.



S32 ROTOJET Junior
Air-driven Motor, cone
cutter, universal joint.

C324 ROTOJET Junior
Water-driven Motor,
univ. joint, pivot head.

C439 ROTOJET Junior
Air-driven Motor, uni-
versal joint, drill head

C434 ROTOJET Junior
Air-driven Motor, flexi-
ble coupling, expanding
brush.



ELLIOTT COMPANY-ROTO DIVISION

141 Sussex Avenue, Newark 1, N. J.

When inquiring check CP 2218 on handy form, pgs. 2-3

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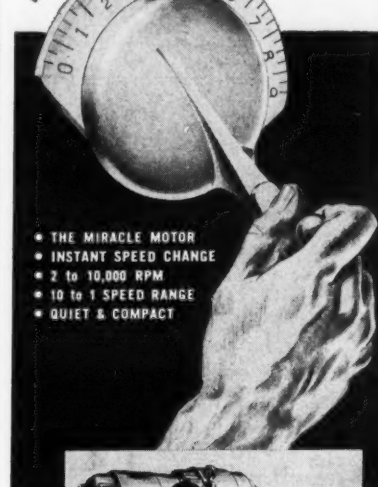
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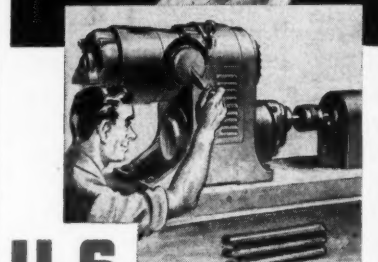
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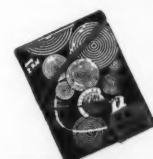
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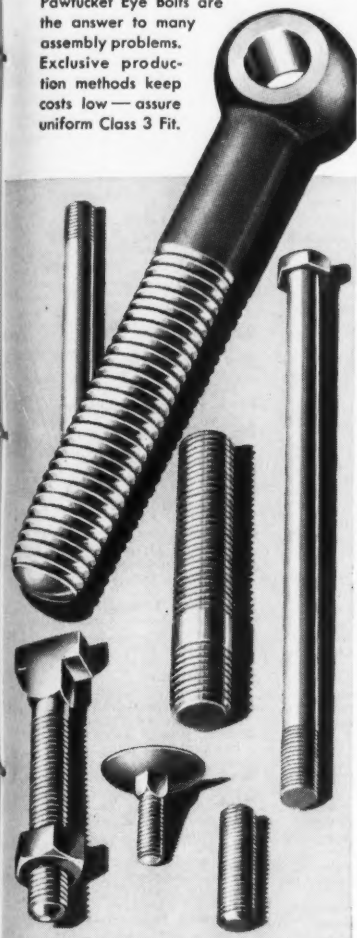
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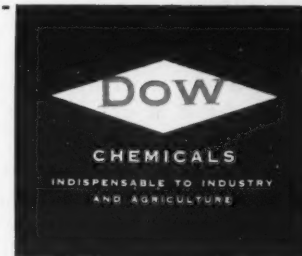
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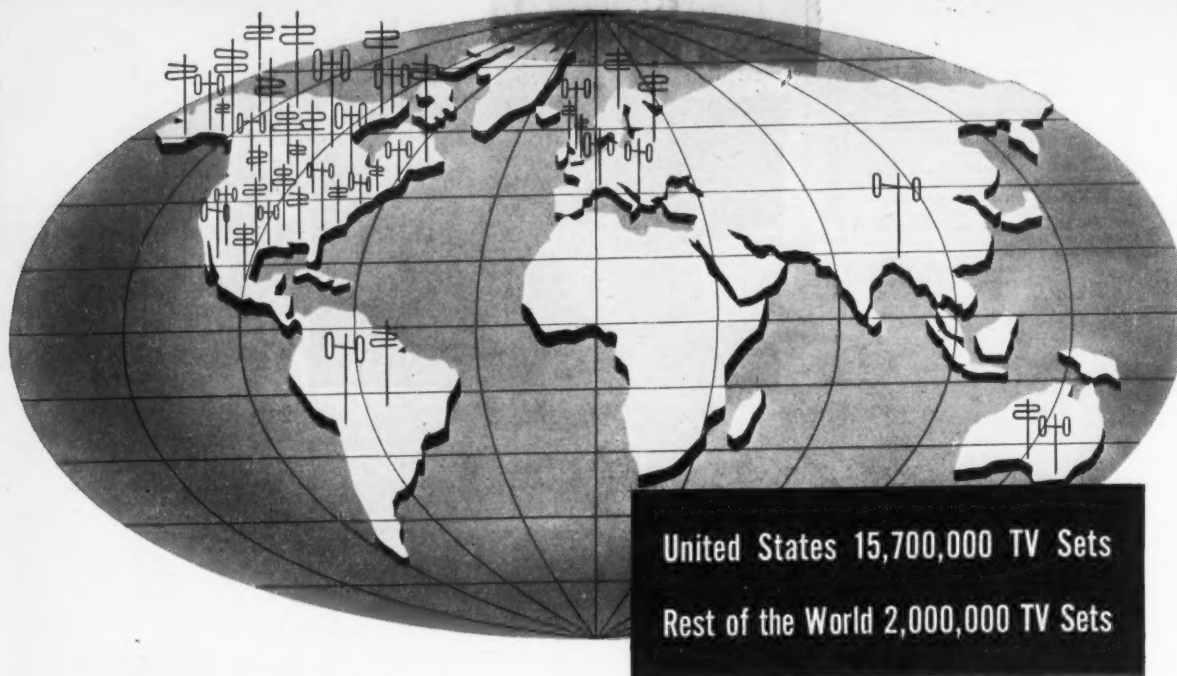
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COMPETITION Turns Luxuries into Necessities

To millions of people throughout the world, washing machines, radios and television sets are miraculous inventions remote from their lives . . . for the wealthy only.

In the United States, however, a new product appears in no time in the homes of wage earners as well as salaried executives.

Consider television, for example. Only 6,500 sets produced in 1946 . . . over 5,000,000 in 1951. Or washing machines . . . more than 24,000,000 in 10 years.

What has Competition to do with this?

Do you think we'd continue to get more and better products if only one company made each item or each line?

No! We get more and better products here in America, because anybody who thinks he can make anything better or sell it more efficiently is free to try.

And many succeed. Take electrical products like radios and television sets . . . and home appliances like washing machines and electric fans. Does the biggest company monopolize this industry? Not by a long shot! Even counting all its affiliated companies, it still sells less than 1/5 of such products bought in this country.

There are nearly a thousand other companies that make home appliances, radios and television sets. And they do more than 4/5's of the business! The

smallest of them make the biggest companies hustle their bones to keep making products better and better.

In America, a better product can always win consumer acceptance in any field.

Let's keep the COMPETITIVE SYSTEM working for us

The Competitive System can be killed! When industries are run by government, when taxes are so high that they destroy the incentive to work hard and risk savings in business ventures, the Competitive System languishes and dies.

You've seen it happen in other lands. Let's not let it happen here.

Let's all of us watch closely to see that those who represent us in government are working with us and for us to preserve our Competitive System; to assure a tax structure that leaves enough incentive to make hard work worthwhile, so that any man with ability and energy has a chance to earn good money and keep most of it.

Competition thrives best where the rewards are high. People live best where competition thrives.

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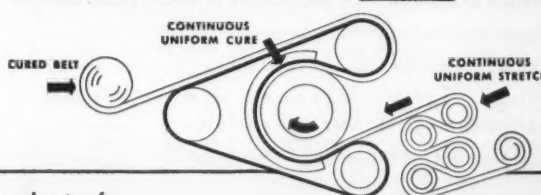
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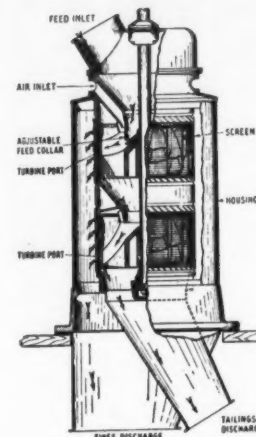
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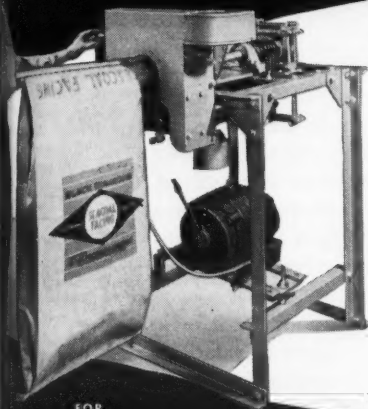
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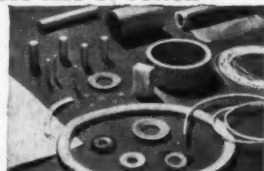


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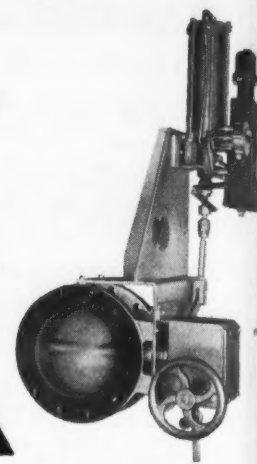
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Take a look at "New Solutions" articles in this issue — they might suggest a "solution" for some of your tough processing problems.

"That's Interesting"

History of pentaerythritol

Pentaerythritol, a tertiary alcohol, was first prepared by the interaction of acetaldehyde and formaldehyde. Latter was required in large excess, and the presence of calcium hydroxide and large volumes of water were also needed. The reaction was reportedly carried out in 5-gal milk cans which had to be shaken for a period of three weeks to complete the reaction at room temperature. Reaction mixture was then evaporated and the pentaerythritol separated by crystallization.

Basically, the same process is used today, but the reaction is completed in a few hours or less. Chief differences between present processes is the means for purification of the final reaction mixture. Many patents now exist for this purification.

In 1943, pentaerythritol production consumed 8.3% of the total formaldehyde output. Today, 18.5% is consumed.

Explosives, modified drying oils, emulsifiers, waxes, plus exports, now account for some 20% of pentaerythritol production — resins claiming the remaining 80%. (Summarized from paper by Raymond F. Schlaanstone, Director of Operations, Synthetics Department, Hercules Powder Co., at the Winter Meeting of the Chemical Market Research Assn., at Wilmington, Del.)

Bad way to drop money

Little drops of fluid escaping along a shaft soon count up to costly losses. Different fluids vary in the size of the drop they form. Using H₂O for a test it was found that 10 drops per minute amounted to 68.43 gal per year. (From the Stuffing Box, Duralmetallic Corp., Kalamazoo, Mich.)

7½ lb refrigerator door liner made of polystyrene

The world's largest thermoplastic product is a one-piece refrigerator door liner, complete with molded-in shelves, butter compartment and egg racks. It weighs 7½ lb and has a projected surface of over 1240 inches. It is the first full-scale molded piece to be put in practical production on the 300 oz Watson-Stillman injection molding machine.

The mold weighs 6 tons, is nearly 5 ft wide, 38 inches high and 22 inches deep. Molding material used is Dow's No. 475 hi-impact styrene copolymer. Production of the liner represents months of joint engineering and research by Amos Molded Plastics, Edinburg, Ind., and Admiral Corp. The Amos organization installed the presses and previously teamed with Admiral to produce the first molded television lens.

Reversing motors or roller mills

A novel means of reversing small electric motors in 3 or 4 milliseconds has been developed by the National Bureau of Standards. Instead of dissipating the kinetic energy of the rotor as heat deceleration, it is converted into potential energy in a torsion bar spring, and then it is used to accelerate the motor quickly in the opposite direction. With proper adaptation, the technique might be used for reversing other machines such as rolling mills.

New Haskell Laboratory announced by du Pont

Plans for construction of a new \$2,000,000 Haskell Laboratory of Industrial Toxicology near Newark, Del., have been announced. The laboratory rigidly tests the company's products and manufacturing processes to eliminate every potential hazard to employees and customers. The new laboratory will also enable the company to broaden basic research on two major scientific questions: the causes of industrial fatigue and the factors that make clothing comfortable. Particular emphasis is placed on research that will reveal the very early physiological changes caused by the action of chemical compounds, in order that adequate preventive measures may be set up in company plants. Information thus developed is also used to instruct customers on the use of company products.

As a result of this work, some promising new products have been changed or abandoned, because of possible hazards to users. Building will be single story, with 33,000 sq ft of space.

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